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ARTICLE XIX.

PRACTICAL REMARKS ON BLOOD-LETTING.

[CONTINUED.]

BY D. B. TRIMBLE, M.D., Chicago, Ill.

In many of the diseases affecting the Respiratory Organs, especially the Phlegmasiæ, blood-letting is indicated.

In *Pneumonia*, particularly the common acute variety, bleeding is generally required. I know that this has been a question in which great difference of opinion has prevailed within the few last years, the advocates and opponents of the measure being, probably, nearly equal in number; but I am fully convinced of its beneficial effect in many cases, and that in some cases it cannot safely be dispensed with.

In the early stages of the disease, where congestion of the lungs, to a greater or less extent is almost invariably an attendant, if the patient is of an ordinarily robust constitution, free venesection will, in many, perhaps nearly all cases, prevent the formation of the stage of hepatization. Nor should we, in this disease, be altogether guided by the condition of the pulse. If it should be full, frequent, and tense we need not be afraid to bleed freely; but there are some cases, in which the pulse is small and oppressed, which calls for this measure even more imperiously than where the pulse is in the first condition men-

tioned. This may be caused by the congestion of the lungs being so great as to prevent the free circulation of the blood through them. If the dyspnœa is severe, and there is a livid and turgid appearance of the face, with the contracted pulse, the opening of a vein will generally relieve the distress in breathing, and the pulse will rise with the flow of blood, in which event we may proceed with boldness; but if the pulse fails under the effect of the operation, we should close the vein. When the disease is not broken up by the first bleeding, it may be repeated until the force of the circulation, the pain and the dyspnœa are wholly or partially subdued, and where general bleeding is no longer admissible, local bleeding from the chest may be substituted. Bilious Pneumonia is sometimes a complication of inflammation of the lungs and liver conjointly, and in this case, the treatment requires no modification from that applicable to the preceding variety; but where it arises from malarial influences, venesection must be more cautious and sparingly practiced. In Typhoid Pneumonia the system is generally so prostrate as not to bear it at all, and in the chronic form it is seldom necessary or beneficial, except in some instances, locally. In the cases of children, also, if used at all, it should be locally.

Since writing the foregoing remarks, I have read a well written address by Dr. YOUNG, of Aurora, published in the February number of the *Examiner*. While concurring with his views of the pathological condition of the lungs in pneumonia and of its symptoms, and also the indications for treatment, I cannot arrive at the same deductions in regard to the effect of blood-letting. He remarks that, "In pneumonia we first have an intense injection of the capilliaries of the lungs. The blood is dammed up, and the heart's action increased in consequence. The substances of the lung, the cells and parenchyma are gorged with blood or bloody serum. The functions of respiration and circulation are impeded, accelerated, and otherwise changed from their normal standard. There is too much blood, and not air enough in the lung, without any actual disorganization." "There is intense congestion of the lung, which constitutes the first stage of the disease—the period of high febrile action. If

this engorged and congested condition be allowed to continue, the lung, after a time undergoes further alterations," etc. "The object to be accomplished in this stage, is to unload the lung and its capillaries of the surplus blood; to equalize the circulation, and lessen the heart's action," etc. Now, as far as these quotations go, I entirely agree with the writer, but when we come to the *means* of accomplishing this desirable object, I differ, and believe Dr. MILLARD'S view is the correct one. I know of no drug, not even veratrum viride, (the article advocated by Dr. YOUNG,) that can act so promptly or thoroughly in unloading the lungs of their surplus blood as venesection, and my experience teaches me that patients recover sooner "from the disease" *and* "the bleeding" than from the disease without the bleeding. Of course, in "anæmic cases," much more caution would be necessary in the use of this remedy.

I am at the present time attending a lady suffering from a severe attack of pneumonia. She is 24 years of age, florid complexion, sanguine temperament. I found her with a flushed countenance and congested eye, a full, bounding, tense pulse, severe headache, severe burning pain in the right lung, especially the upper portion, considerable dyspnœa, and some cough, but little expectoration. What was the indication? Certainly to unload the congested lung, and, as a sequence, the other symptoms. I opened a vein by a large orifice, and abstracted 12 or 14 ounces of blood, when she became sick and faint, and I stopped the bleeding. Presently she vomited freely; the pores of the skin were opened; she breathed freely; and said the pain in her chest and head had disappeared. I ordered warm emollient applications to the chest, and a cathartic to be given at daylight, (it was then about 9 o'clock P.M.,) and left her. The next day, I found the fever had returned, together with the pains in the head and chest, though not so severely; the dyspnœa was considerably less, and there was a free expectoration of viscid and rusty sputa. I gave neutral mixture with spts. nitre, and subsequently, added a small portion of tart. antim. On Saturday, the pain in the chest continuing severe, the pulse still full and frequent, the face flushed, and skin hot,

I gave her tinc. verat. viride, in 5 drop doses, every fourth hour. Three doses brought on active emesis, which I found much difficulty in allaying. I then applied a large blister to the right thoracic region, which produced thorough vesication, and relieved the pain. I also gave ½ gr. opii and 2 grs. calomel at night. On Monday, (yesterday,) I found her free of pain, free of fever, with a natural countenance, expectoration free, and nearly clear of the rusty appearance. In the evening, more fever, which I attributed partly to the sufferings produced by severe strangury. This morning, (April 3d,) there is some improvement; and I recommenced the veratrum, in doses of 2 drops, alternating it with an expectorant and diaphoretic. At my evening visit, I found the gastric distress renewed, with some emesis, and I discontinued the veratrum. *4th.* Gave expectorants and diaphoretics in alternation. *5th.* Fever nearly gone; pain in the lung disappeared; cough and expectoration free; continued expectorants and gentle anodynes.

This has not been a case to fairly test the effect of the veratrum vir., as it was preceded by venesection; but its failure to reduce the pulse, after the evidence of its influence on the system, as shown by the prompt and severe effect it had on the stomach, would certainly induce me to hesitate before substituting it for a remedy so long and so favorably known in the cure of this disease. There may, however, be cases, probably those occurring in anæmic or debilitated constitutions, where it might have a better effect than in the one in which I tried it; and from the evidence in its favor, by gentlemen prominent in the profession, it must, in many cases, exert a salutary influence; but while some of the latest and best authorities still advocate judicious bleeding in pneumonia, I do not think we are justified in ignoring it. Among these authorities I may cite Professor JACKSON, of Boston, and Professor WALSHE, of London, who says, "Pneumonia is an inflammation; hence antiphlogistic remedies, and among these blood-letting, must hold the first rank among means calculated to bring it to a favorable issue." "We find some men ascribing results the most favorable to venesection, pushed to startling extremes, and others tracing

an equal or yet greater success to a system of absolute non-abstraction of blood. Lamentable, indeed, is the spectacle of hostile opinion and vacilating practice afforded by the history of the treatment of pneumonia, from the days of HIPPOCRATES to our own." Again, he says, "In acute sthenic pneumonia, here are few barriers to venesection." I fully concur in the conclusion he arrives at, that "We have learned from our predecessors the evils of *over-bleeding*,—and seem, in my opinion, very much disposed, at the present day, to learn from ourselves the evils of *under-bleeding*."

In *Acute Pleuritis*, free venesection affords almost immediate relief to the severe pain and dyspnœa that generally accompanies this disease. I have had patients who, from the severity of these symptoms, were unable to lie in the recumbent posture, and in whom respiration was performed with great difficulty, so greatly relieved by this means, that they would be enabled, before the bleeding was checked, to take a deep inspiration, and lie in any position. There is no disease in which such speedy relief is obtained from bleeding, perhaps, as in pleurisy, and none in which it is more necessary, except apoplexy. The operation my be repeated if the pulse remains strong and frequent, and the pain returns. I seldom find it requisite, however, to resort to more than one free bleeding. After the reduction of the most active symptoms, if the inflammation has not been subdued, cups or leeches applied to the chest will probably be required. There are often cases of pleurisy of so mild a character, as to yield readily to remedial means, without either general or local bleeding; and I have frequently treated cases successfully without resorting to either. Early in my practice, when what was then called congestive fever was prevailing, to a great extent, in my locality, I was attacked with pleurisy, quite severely, and being anxious to resume my professional duties as soon as possible, I took a free bleeding from the arm, applied a large blister to the chest, took no medicine internally, and in four days, was attending my patients.

In the combination of these two diseases, or *Pleura-Pneumonia*, it is as applicable as in either of the simple diseases.

In *Pneumo-thorax*, when inflammation of the pleura supervenes, leeching, and if the system will bear it, occasionally venesection may be resorted to.

In *Emphysema*, when there is congestion of the lungs, or bronchial inflammation, venesection, or local bleeding, either from the chest or between the scapulæ may be required.

In *Phthisis Pulmonalis*, the only circumstances that demand bleeding are a tendency to pneumonia, or hæmoptysis, and this only if the pulse is full and strong. In doubtful cases, it may be dispensed with, and only used locally by cups or leeches to the chest.

In inflammations of the *Respiratory Passages*, bleeding is often of essential benefit.

In *Acute Bronchitis*, though not required to the extent or as frequently as in pleuritis, (and, as a general rule, the mucous membranes require this treatment much less actively than the serous,) yet when the pulse is strong and excited, the dyspnœa severe, and there is much soreness of the chest, venesection may be resorted to in proportion to the strength of the patient, and the severity of the disease. Prof. WALSHE'S rule is: "In the first stage," where the disease is extensive, the constitution strong, fever of the sthenic type, "from 8 to 14 ounces may be drawn;" but should not be repeated unless the "blood drawn is highly hyperinotic." If the disease is moderate, or if violent in feeble persons, "cupping between the scapulæ, or 8 to 15 leeches to sternum infra-clavicular or axillary regions."

In the *chronic* form, where there is much irritation, moderate general bleeding may, in some instances, though rarely, be necessary; local depletion will be more applicable.

In *Influenza*, it is seldom required.

In *Cynanche Treachealis*, of the catarrhal variety, the disease may often be relieved by other remedial measures; but if this is not the case, and there should remain considerable spasmodic action, with a full and vigorous pulse, blood should be taken from the arm; and, perhaps, in a few very urgent cases, the temporal artery or jugular vein may be opened. Bleeding in children, however, should never be carried to syncope. If

fever, difficult respiration, pain within the throat or chest, and hoarseness of voice remain, evincing the continuation of inflammation, leeches applied to the throat or chest will often afford great relief. In *Pseudo-Membranous* croup, bleeding is seldom required; and in those cases following scarlatina, should never be used. In cases from other causes, when the inflammation is severe, leeching the throat or chest, or moderate venesection, may sometimes be useful.

In *Acute Laryngitis*, if the fever is high, with a full, strong pulse, free venesection, repeated if necessary, and followed by leeches applied over the larynx, if the disease is not previously subdued, will be frequently required. In *Chronic Laryngitis*, general bleeding is scarcely ever requisite; but leeches to the larynx, or cups to the nuchal region, are often useful.

Coryza, accompanied by headache, and a full, strong pulse, may be much relieved by moderate venesection; and if the frontal or maxillary sinuses are inflamed, leeches should be applied to the forehead, cheeks, or nostrils.

In *Pertussis*, accompanied by severe bronchial inflammation, venesection or leeching the chest may be resorted to; but in the great majority of cases, it is not demanded.

During the paroxysm in *Asthma*, if the pulse is full and strong, and there are symptoms of accompanying bronchitis, venesection will often give prompt and efficient relief. In the interval, if there is chronic bronchial inflammation, local depletion from the chest will be appropriate.

In inflammation of the *Bronchial Glands*, local depletion may be beneficial, if the disease is not produced by tuberculous or malignant causes.

Where congestion of the brain is present from *Apnœa*, venesection is sometimes necessary; when it should be taken from the jugular vein, as this relieves the brain more directly, and also the right side of the heart, which is usually overloaded.

ARTICLE XX.

ENTROPION AND TRICHIASIS OF THE UPPER LID; THEIR RADICAL TREATMENT, BY AN OPERATION, WITHOUT DIVISION OF THE SKIN.

By JOSEPH S. HILDRETH, M.D., late Brevet Lt.-Col. and Surgeon U.S. Vols., in charge of Desmarres (U.S. Army) Eye and Ear Hospital; Ophthalmic and Aural Surgeon to Cook County Hospital, Chicago, Ill.

That abnormal condition of the lid which makes its free border turn inward is called Entropion. Its causes are various; but the operation here proposed is intended to apply, mainly, to that form of the affection resulting from atrophy, or loss of the mucous membrane, and alterations of the tarsus.

Trichiasis is that condition of the eyelashes which brings them into contact with the globe. Certain modifications are designated as districhiasis and tristrichiasis, according to the subdivision of the deviated lashes into two or three rows.

These distressing conditions of the lid, so frequently fatal to the eye involved, can be relieved, permanently, by surgical or mechanical means only.

When confined to the lower lid the procedure is comparatively simple; but the upper lid, from its peculiar mechanism, is much more difficult of treatment.

To relieve that form of entropion referred to above and trichiasis, I resort to either destruction of the cilia or change their position on the tarsus. The former operation is admissable when but few of them are affected, and on account of extreme age of the patient or other conditions the latter becomes inexpedient. With these exceptions, the operation of "transplantation" is always to be preferred. This consists in dissecting up that portion of the lid which contains the deviated cilia from the tarsus, and then causing it to become so attached to the cartilage that the lashes assume and remain in their proper position.

Before describing the manner in which this may be accom-

plished, a few words upon the mechanism of some of the parts involved will not be inappropriate.

1st. The position and functions of the orbicularis are such that, when contracting, it tends to draw the ciliary margin of the external integument of the lid *over* the free edge of its cartilage.

2d. The levator, when contracting, tends to draw the free edge of the cartilage *away* from the ciliary margin of the skin covering it.

Hence two antagonistic forces, *both* tending to produce a projection of the ciliary border of the skin covering the lid over the corresponding edge of the tarsus, and thereby deviating the cilia inward.

This constitutes the principle obstacle to be overcome, and the one which not unfrequently militates against success in the operation of transplantation.

To counteract this difficulty, and at the same time avoid dividing the external integument, the following method of operating suggested itself:—

1st. An incision is made in the free edge of the lid, anterior to the orifices of the meibomian glands, and posterior to the deviated lashes.

It may extend from within one millimetre of the lachrymal punctum to the outer commissure, or further, if required.

2d. The tarsus is to be dissected in its whole breadth, and, as far as practicable, to the length of the incision just made, from the parts external to it, including the skin, orbicularis, etc.

The *former* is now under the influence of the *levator* only, the *latter*, that of the *orbicularis*.

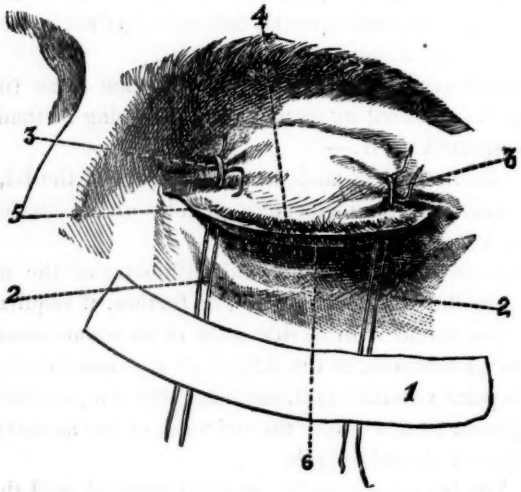
3d. The lid must next be reversed outward, and the tendon of the levator made to descend, so that a separate, coarse silk thread can be passed through it, close and parallel to the superior edge of the tarsus, and near both extremities of its separation from the external integuments. Both strands of each ligature must come through the mucous surface, and each loop should embrace horizontally about five millimetres of the tendon, taking care not to include any of the parts external to it.

The four strands of the two cords thus left projecting from the apperture of the lids should be left four or six inches long, in order to insure fastening to the cheek.

4th. Traction on these cords must next be made sufficient to bring the ciliary edge of the tarsus in contact with—in some cases below—the corresponding border of the opposite lid, and then firmly secured to the check by strips of adhesive plaster.

The skin and fibres of the orbicularis are now to be drawn upward and fixed to the tarsus in proper position by two *broad* stitches, inserted near the junction of the outer thirds with the inner third of the dissection of these parts from the tarsus.

The following cut, sketched immediately after an operation, shows the proper position of the parts:—



1, Represents method of securing cords which control the levator.

2, 2, The cords holding the levator.

3, 3, Stitches securing proper position of external integument.

4, Ciliary border.

5, Lachrymal punctum.

6, Border of tarsus, projecting, in this case, about two millimetres below the ciliary margin of the skin.

The strips of adhesive plaster should be numerous enough and the cords sufficiently long to guard against slipping.

The lower border is made to project a short distance below the ciliary margin of the external integuments, to allow for subsequent contraction. The extent to which it should project must depend upon the condition of its inner and lower edge. If this is well defined, it requires less than when rounded and irregular. In some cases, after adhesion has taken place, it may be well to remove a small portion of the lower border of the cartilage and thereby restore its normal shape.

The cords holding the levator should always be so arranged as not to rest on the cornea. They can be passed through the upper margin of the cartilage as well as the tendon, if the operator is fearful of their becoming detached too soon, and may remain in position a week, if desired; but three days, ordinarily, will be sufficient.

The outer stitches can be removed after the third day. But the removal of these as well as the long cords must of course depend upon the rapidity and firmness with which adhesion takes place.

Both eyes should be kept closed until the cords are removed.

Great care should be taken to so operate as to include *all* the deviated lashes. Should a few escape, they can be destroyed subsequently.

The advantages offered by this mode of operating are:—

1st. No wound of the external integument of the lid is required, which always produces more or less deformity.

2d. The tendency of the transplanted parts to suppurate, to fail to unite well, or of the cilia to subsequently fall out on account of imperfect nutrition, is avoided.

The circulation of the parts being but little interfered with, reunion is rapid and the result permanent.

The presence of the cords within the lids controlling the levator, like stitches required within the lids in other operations, does not prove to be a practical objection.

ARTICLE XXI.

THE PRIMARY SURGERY OF GEN. SHERMAN'S CAMPAIGNS.

By E. ANDREWS, M.D., Prof. of Surgery in Chicago Medical College, and J. M. WOODWORTH, M.D., Late Medical Director of the Army of the Tennessee.

A perfect record of the primary surgery of a military campaign is a desideratum seldom obtained. Owing to the hurry of battle and the movements of troops, records on the spot are too often neglected, and any perfect estimate of the value of the various surgical operations rendered impossible. The authors of this article, who were both under the command of Gen. Sherman, viewed with great regret the almost total loss of surgical statistics which occurred in the first half of the war, and resolved on making a strong effort to preserve reliable records of the army in which they served. For this purpose, they made systematic preparations before any similar system was established by the War Department, and succeeded in obtaining a large mass of valuable information which has never reached the Surgeon-General's office. At a later period, the surgical records of the army underwent a reform, and furnished the means of obtaining still larger collections of material.

The subjoined tables contain almost the entire primary surgery of Gen. Sherman's army, during the campaigns in Georgia, leading to the capture of Atlanta, the famous "March to the Sea," the siege of Savannah, and the operations in South and North Carolina to the close of the war. With this is combined a complete record of the battle of Chickasaw Bayou, near Vicksburg, a portion of the other engagements in that region, and a large number of facts, gathered from Shiloh, Corinth, and other Western battles. The death or recovery of each patient is given, so far as obtainable, and if unknown is so stated.

Gen. Sherman's troops were always remarkable for the immense marches which they undertook. They were kept in the

lightest possible moving order, and, to a great extent, dispensed with the use of tents, except when stationary. Their history is briefly this:—

After the battle of Shiloh, they moved on Corinth and constituted the extreme right at the capture of that place. They then moved leisurely to Memphis, fortified that place, and occupied the surrounding region, engaging in many small skirmishes, but meeting no large body of the enemy. Thence, they moved by water to Vicksburg, where they engaged in the battles of Chickasaw Bayou, Arkansas Post, siege of Vicksburg, and the other important operations in that region. At the close of this campaign, they returned by water to Memphis, and thence undertook that prodigious march from the City of Memphis almost to Knoxville, and thence back again to Chattanooga. In this region were fought the battles of Mission Ridge, Resaca, Allatoona Pass, Kenesaw Mountain, Jonesboro, etc., etc., resulting in the capture of Atlanta, after a most magnificent campaign. After making proper arrangements, Gen. Sherman sent to the rear all his sick, wounded, and enfeebled men, and, with a force of over 65,000 seasoned and hardy troops, commenced his renowned "March to the Sea." On this march there occurred some sharp fighting, but, owing to the splendid arrangements of Med. Director MOORE, all the wounded were carried through, not a man being left behind. There was an opportunity here to observe the effects of land transportation upon wounded men, and to compare them with the results previously seen on the hospital steamers of the Mississippi River. The results were calculated to overthrow some of the received opinions on this subject. These wounded, though carried in ambulances an immense distance, suffered a much less mortality than the average of the hospital steamers, and even of many of the general hospitals. We infer from this, not that wheel transportation is free from all injurious effects, but that the pure air of an open ambulance, in spite of its shaking, renders it a safer place for a wounded man than the foul air of many general hospitals and hospital steamers, notwithstanding their quietness, their good food, and their soft cots. Where a por-

tion of the wounded of a battle are taken in ambulances to a general hospital at some distance, and another portion are kept in the field, it is uniformly found that those who are treated in the hospital do worst. This is often attributed to the shaking received on the route from the ambulance. The experience of the "March to the Sea" shows, however, that wounded men carried in ambulances from the day of battle to the termination of the case, *do better than in most general hospitals.* The prime necessity of a wounded man is pure air, and compared with this, all questions of diet, beds, and even shelter and repose seem to be secondary. This great truth was difficult to learn, and, to many of us, hard to believe, until it was taught by the stern experience of war, and proved by observations covering many thousand cases.

At the close of the war, marked by the surrender of Johnson's army in North Carolina, Sherman's forces marched to Washington. During this movement, an illustration of the evils of forced marches was displayed on a large scale. The troops were in the highest exhilaration of spirits, at their magnificent conquests and at the prospect of a speedy return home. Acting under this natural impulse, the 15th and 17th Army Corps virtually ran a footrace of several days duration, to see who should reach Richmond first. From 15 to 17 miles is a good day's march for infantry, and very few generals can get large bodies of men over as great an average distance as that, when moving day after day for a considerable time. On the 1st of May, these two corps marched 20 miles; on the 2d, 25 miles; on the 3d, 13 miles; on the 4th, 24½ miles; on the 5th, 18 miles; and on the 6th, 26 miles, when they halted near Petersburg. As the result of this enormous footrace of six days duration, 1630 men were found disabled from lameness and exhaustion, and had to be sent to Washington by steamers.

THE NUMBER OF THE WOUNDED.

The total number of wounded on our records, is 6122. Of these, 1042 are simply entered as wounded, with no additional information respecting them.

CAUSES OF WOUNDS.

The cause of the wounds is recorded in 4480 cases, as shown in the following table:—

Bullets, (nearly always conical,)	3980
Shells,	384
Buckshot,	25
Grape and Canister,	24
Torpedoes,	14
Pistol Shots,	12
Solid Shot,	11
Accidental Explosions,	8
Bayonets,	7
Splinters,	6
Stones,	3
Gun Caps,	3
Strippings of Cannon Shot,	3
Sabres,	0
Total,	4480

It will be seen at a glance, that the musket is manifold the most destructive agent used in war, causing seven-eighths of all the wounds. This, however, is owing purely to the numerical preponderance of the infantry. If we examine the table, it will be seen that 431 wounds were caused by artillery, which is about 10 per cent of the whole number. Now it is not probable that the enemy's artillery exceeded 7 per cent of his entire force, which shows that, in proportion to the men engaged, artillery is more destructive than infantry and cavalry. It is seen, also, that almost the whole effect of artillery is produced by shells, the wounds of which were 384 in number, while the solid shot, grape, canister, splinters, stones, and strippings of shot, altogether, only injured 47 men.

The buckshot are mostly from shotguns, in the earlier half of the war, when that weapon was extensively carried by the rebels. The remainder are from the old-fashioned round musket ball cartridge, also much used by the enemy. The uselessness of the buskshot is shown by the few wounds produced by them. The gun cap wounds were in the eye, and were caused

by the bursting of the percussion cap on the nipple of the gun.

Only 7 bayonet wounds are recorded, and a part of these were accidental. It will be remembered that though bayonet charges are often made, men seldom cross these weapons in close fight. One party or the other gives way before the collision occurs.

The 14 torpedo wounds were all received in the storming of Fort McAllister, near Savannah, from torpedoes planted in the earth to assist in the defence. The pistol wounds were almost all received in the same assault, in consequence, doubtless, of the rebel officers using their pistols to increase the amount of fire from the walls.

Not a single sabre wound is recorded, though these weapons were carried by all the cavalry and many of the artillery. The rebels, at the beginning of the war, had high expectations for their cavalry, owing to the great prevalence of habits of saddle travel in that region; but this, like many other mistakes, arose from not considering all their circumstances. The fact is, the nature of the country is such, that extensive cavalry operations, in the European sense of the term, are impossible. Almost every battle was either in the forest, or among such crags, ravines, or marshes that an opportunity for a regular charge by mounted men could scarcely ever be found. A body of highly-trained European cavalry placed in our Southern States would have been the most helpless piece of lumber that ever encumbered an army—incapable of defence, and useless for attack. Both sides, therefore armed their mounted forces with carbines, and sabres rusted idly in their scabbards.

DISTRIBUTION OF THE INJURIES.

The following table shows the nature and position of injuries, with their results, so far as traced:—

Wound.	Recov'd.	Died.	Result Unk'n.
Flesh wounds of head,----------	146	10	69
Non-penetrating flesh wounds of trunk,	214	7	87
Penetrating wounds of thorax, --------	26	127	76
" " abdomen,------	7	109	31

" " pelvic viscera,-		4	
Flesh wounds of superior extremity,--	221	2	78
" " inferior " --	425	9	81
Wounds of large arteries,----------	5	3	2
Contusions, ----------	102	4	34
Concussions, ----------	6	2	2
Fractures of cranium, not penetrating the brain,----------	15	9	7
Penetrating fractures of cranium,-----		54	7
Comp. fractures of facial bones,------	45	8	15
Fractures of spine,----------	2	21	3
Compound fracture of scapula,--------	10		5
" " clavicle,--------	1	3	
" " shoulder-joint,--	63	20	17
" " humerus, ------	101	24	55
" " elbow-joint, ----	29	7	17
" " forearm, -------	88	8	50
" " wrist, ----------	13		8
" " hand & fingers,-	124	2	
" " pelvis, ---------	7	10	11
" " hip-joint, ------		9	1
" " femur, ---------	78	125	57
" " knee-joint, -----	24	45	41
" " leg,----------	91	45	73
" " ankle-joint, ----	14	1	8
" " foot,----------	53	3	23
Wounds not described, mostly flesh-wounds which usually recovered,-			2683
	1910	671	3541

In looking over the above list, it will be seen that it is impossible to determine the absolute ratio of mortality, owing to the great number of cases in which the results are unascertained. As the greater part of the deaths occur within 20 days of the injury, it is to be presumed that the deaths were much fewer among the cases which went to the rear and were lost sight of, than among those of which the result was ascertained. As a test of relative mortality, however, the table is valuable.

FLESH WOUNDS.

Simple flesh wounds, not involving large vessels, nerves, nor important cavities, produce very little danger. Of 1034 flesh

wounds whose results were ascertained, only 28 died, or a little over 2 per cent.

PENETRATING WOUNDS OF THE CHEST.

The danger of this class of injuries is in striking contrast to the safety of the preceding. Of 153 cases, whose results were ascertained, 127 died, and only 26 recovered, being a mortality of about 83 per cent. As there were 76 cases whose termination was not ascertained, it is probable that a larger portion of them recovered, which would reduce the rate somewhat. The Surgeon-General, from a list of 1272 cases, reports a mortality of 73 per cent.

PENETRATING WOUNDS OF THE ABDOMEN.

These are still more fatal than those of the chest. Out of 116 cases 109 died, making a mortality of 94 per cent, while only 31 cases remained in doubt. The Surg.-Gen.'s statistics differ widely from these. In a list of 543 cases he reports a mortality of only 74 per cent, which is only a trifle greater than that of the chest wounds. As this is contrary to all our personal observation, we are compelled to believe that the Surg.-Gen.'s statistics must be vitiated by cases of mere flesh wounds of the parietes, falsely reported by careless and hurried surgeons as penetrating wounds. This is the more likely, as the diagnosis is not always easy, and conjectures are often put into official reports instead of knowledge, in the hurry of field duty. Certainly there must be a great error somewhere in figures which make penetrating wounds of the abdomen scarcely more dangerous than those of the chest.

We found the proportion of deaths so great that we seriously contemplated the heroic experiment of opening the abdominal cavity, washing it out, and stitching the wounded intestine to the external orifice, as a desperate resort for a desperate injury; but not finding any authority to justify us, we did not finally venture on it. We deem the suggestion, however, worthy of serious consideration. Wounds of the large intestine appear, for some reason, to be more hopeful than those of the small bowel.

WOUNDS OF THE PELVIC VISCERA.

These were few in number and uniformly fatal, in our recorded cases. We learned, however, of cases that recovered in other departments.

FRACTURES OF THE CRANIUM.

These fractures should be considered in two classes, viz.:—the penetrating, and the non-penetrating. Those in which a bullet, or even a buckshot, penetrates the brain are the worst of all wounds. Out of 61 cases on our list, 54 are known to have died, not a single one was ascertained to have recovered, and only 7 remained in doubt. The cases, however, in which the bullet only fractured the bone and lodged or glanced off without penetrating the brain were widely different in their results. Out of 24 cases only 9 died. The Surg.-Gen.'s reports mix both these classes together, so that it is impossible to compare his results with our observations. In two of the non-penetrating fractures, epilepsy is ascertained to have ensued.

FRACTURES OF THE SPINE.

Out of 26 cases 21 died, only 2 recovered, and 3 were unascertained. Entirely similar to this is the official record of the Surg.-Gen., who has a list of 187 cases, out of which 180 died.

FRACTURES OF THE SCAPULA AND CLAVICLE.

Fractures of the scapula gave us no ascertained case of death, but out of 4 fractures of the clavicle 3 died; but the fatal result in these cases was owing to penetration of the lung, and other complications.

FRACTURES OF THE SUPERIOR EXTREMITY.

These are not very dangerous, and generally do well under conservative treatment. The table shows that the danger diminishes as the location of the injury recedes from the shoulder.

FRACTURES OF THE HIP-JOINT.

Of 9 ascertained cases, not one recovered. The statistics at Washington show similar results. Of 82 cases, only 2 survived.

FRACTURES OF THE FEMUR.

These are a most dangerous class of injuries. The brittle, ivory like tissue of the shaft of the femur is often comminuted by the force of a bullet into a hundred fragments, which are spread out into the muscular tissue of the thigh with all the force of an explosion. The shock, therefore, is tremendous, and a large portion of the patients sink without reaction. Great efforts have been made to improve this result, by new modes of treatment, but still the fact remains that the majority of gunshot fractures of the femur are fatal. Our table shows 78 recoveries and 125 deaths. The report of the Surg.-Gen., in like manner, shows 462 recoveries and 689 deaths, which gives nearly the same ratio.

FRACTURES OF THE KNEE-JOINT.

These also are fearful injuries. Out of 69 ascertained cases, we lost 45, which is a mortality of 65 per cent. The tables of the Surg.-Gen. are much less favorable. They show 598 deaths out of 770 cases, which is a mortality of nearly 78 per cent. This result is mainly attributable to the fact that almost all our cases were treated by primary amputation, while many of the Surg.-Gen.'s cases were treated conservatively, which in this injury is synonymous with destructively.

AMPUTATIONS.

The following table shows the cases of amputation in which the results were ascertained:—

	Recovered.	Died.	Per cent of Deaths.
Primary amputation at Shoulder-joint,---	11	2	15
Secondary " " ---	2	1	33
Primary " Arm, ----------	55	5	8
Secondary " " ----------	4	1	20
Primary " Forearm,--------	21	2	9
Secondary " " --------		1	
Amputation at Hand,----------	4	1	20
" Fingers,----------	60	1	1½
Primary amputation, Upper 3d of Femur,	5	13	72
Secondary " " "		2	
Primary " Middle 3d "	11	14	56

Secondary	"	Middle 3d of Femur,	2	2	50
Primary	"	Lower " "	37	24	40
Secondary	"	" " "	24	12	33
Primary	"	Leg,	60	24	29
Secondary	"	"	7	4	36
Amputation at Ankle-joint,			3	1	25
Pirrogoff's amputation,			2	1	33
Syme's	"			1	
Chopart's	"		2		
Amp. at other parts of Foot and Toes,			18	1	5

The following figures, extracted from Circular No. 6, of the War Department, will serve as a basis of comparison with the above:—

	Recovered.	Died.	Per cent of Deaths.
Amp. of Fingers and parts of Hand,	1778	29	1.60
" at Elbow,	19		
" Forearm,	500	99	16.52
" Arm,	1535	414	21.24
" Shoulder-joint,	144	93	39.24
" Toes,	784	6	.75
Partial amp. of Foot,	108	11	9.24
Amp. at Ankle-joint,	58	9	13.43
" Leg,	1737	611	26.02
" Knee-joint,	52	64	55.17
" Thigh,	568	1029	64.43
" Hip-joint,	3	18	85.71

The following list of amputations is compiled from the records of Surgeon-General CHISHOLM, of the Confederate Army:

Place of Amputation.	Recovered.	Died.	Per cent of Mortality.
Primary amputation Shoulder-joint,	54	25	31
Secondary " "	8	20	71
Primary " Arm,	252	42	14
Secondary " "	87	53	37
Primary " Elbow-joint,	3	1	25
Secondary " "	23	6	26
Primary " Forearm,	61	8	12
Secondary " "	35	10	22
Primary " Hip-joint,	1	2	
Secondary "	1	1	
Primary " Thigh,	213	132	38
Secondary " "	43	119	73

Primary amputation	Leg,		219	95	30
Secondary "	"		76	74	49
Primary "	Chopart's,		13	3	
Secondary "	"		7	1	
Primary "	Syme's,		2		
Secondary "	"		4		
Primary "	Pirrogoff's,		2	2	

AMPUTATIONS AT THE SHOULDER-JOINT.

For this operation we find the following rates of mortality:—

In Sherman's Army, prim. and sec.,	23	per cent.
U.S. Surg.-Gen.'s tables, "	39	"
Confederate Army, primary,	31	"
British wars with Napoleon " (Guthrie)	28	"

AMPUTATIONS OF THE ARM.

Mortality in	Sherman's Army, prim. and sec.	10	per cent.
"	Surgeon-General's Tables "	21	" "
"	Confederate Army, primary	21	" "
"	European Armies, (Guthrie)	23	" "

We saw no cases of amputation at the elbow.

AMPUTATIONS OF THE FOREARM.

Mortality in	Sherman's Army, prim. and sec.	12	per cent.
"	Surgeon-General's tables "	17	" "
"	Confederate Army, primary	19	" "

AMPUTATIONS AT THE HIP-JOINT.

This operation was not resorted to in any instance, consequently we can add nothing to the general stock of knowledge on that point. The Surgeon-General reports 21 cases, 18 of which died.

AMPUTATIONS OF THE THIGH.

		Mortality.	
Primary Amp. in	Sherman's Army	49	per cent.
Secondary "	" "	61	" "
Primary "	Confederate "	38	" "
Secondary "	" "	73	" "

The Surgeon-General does not distinguish between primary and secondary cases, and, therefore, his statement is not entered here for comparison.

The death-rate varied very much, according to the distance from the body, as the following statement shows:—

Mortality of Prim. Amp. in			Upper 3d of Thigh			----72	per	cent.
"	"	"	Middle	"	"	----56	"	"
"	"	"	Lower	"	"	----40	"	"

AMPUTATIONS AT THE ANKLE-JOINT.

These are few in number, but, so for as they go, confirm the superior safety of SYME'S operation, as compared with PIRROGOFF'S. Adding our own figures to those of the rebel army, we find the following result:—

	Recovered.	Died.
Syme's Amputation----------	6	1
Pirrogoff's " ----------	4	3

PIRROGOFF, himself, is said to have abandoned his operation, on account of the frequent necrosis of the stump of the os calcis. Certainly, the military record is against it, and yet we have found it in civil practice a very useful and comparatively safe operation.

It will be noticed above, that there is, apparently, a much less mortality in our statistics of amputation than in those of our Surgeon-General, or those of the Confederate Army. This arises, partly, from the fact that our cases are nearly all primary, our observations being mostly confined to field service, while the records of the Surgeon-Generals of both armies contain an excess of secondary operations, from the fact that the general hospital cases were all faithfully reported to them, but the field cases were not so fully recorded. Their tabular results are, therefore, affected by the greater mortality which always belongs to secondary operations. The U.S. Surgeon-General has not stated separately the primary and secondary cases, so that we are unable to compare Sherman's army in this matter with the rest of the Union forces. The Confederate statistics, however, are distinguished into primary and secondary, and still show a greater mortality than Sherman's in most of the amputations.

RESECTIONS.

The following table gives a view of all the resections whose results were determined:—

Resections in Sherman's Army.

Operation.	Recovered.	Died.	Per cent of Deaths.
Prim. Resection of Shoulder-joint	18	8	31
Sec. " "	23	5	18
Prim. " in continuity of the Humerus	7	1	12
Sec. " " " "	5		
Prim. " of Elbow	6	2	25
Sec. " "	1	1	
Prim. " in continuity of Forearm	19	1	5
" " " Femur		4	100
Sec. " " "	4	4	50
Prim. " of Knee	1	1	
Sec. " "		1	
Resections in continuity of Tibia	5		
" " Fibula	3		
" " Clavicle	1	4	80

Resections reported by the U.S. Surgeon-General.

Operation.	Recovered.	Died.	Per cent of Deaths.
Prim. Resection of Shoulder-joint	160	50	23
Sec. " "	183	115	39
Resection of continuity of the Humerus	133	42	24
" the Elbow	224	62	22
" in the continuity of Forearm	217	32	13
" of the Hip-joint	4	26	87
" in the continuity of the Femur	6	32	84
" of the Knee	2	9	84
" in the continuity of the Tibia	48	11	19
" " " " Fibula	60	15	20

Resections in the Confederate Army.

Operation.	Recovered.	Died.	Per cent of Deaths.
Prim. Shoulder-joint	28	13	27
Sec. "	19	7	21
Prim. Elbow-joint	22	3	12
Sec. "	23	6	24
Hip-joint	1	1	
Knee-joint	2	2	

From an examination of these tables, it will be seen that resections do not follow the law of amputations in respect to primary and secondary operations. In Sherman's army, primary resections were generally more fatal than secondary, though the reports from other parts of the army do not fully conform to the same rule.

From comparison of the various tables, it will be seen that resection of the shoulder is preferable, on the score of safety, to amputation, and, accordingly, it was generally given the preference by surgeons, wherever the choice presented itself. In addition to the greater safety of the operation, there is the important consideration of the usefulness of the limb, which, in spite of the loss of bone, is very valuable. The same remarks are applicable to resections of the elbow and wrist. In short, the military surgeon may, in respect to resections of the superior extremity, guide himself by the rules of civil surgery.

The writers of this article had no experience with military resections of the hip-joint, as we deemed that the patient's chance was better without the operation than with it. The Surgeon-General's tables give it a mortality of 87 per cent.

For similar reasons, we abstained from resections of the knee-joint. The impossibility of transporting such patients in an ambulance is obvious at a glance. Wounds of the knee-joint were, therefore, generally treated by amputation at the lower 3d of the thigh. Of three such resections which fell under our notice, two died. The Washington statistics give a mortality of 84 per cent to resection of the knee, while the primary amputation in the lower 3d of the thigh only gave, in Sherman's army, a mortality of 40 per cent.

RESECTION IN THE CONTINUITY OF BONES.

This class of resections is seen in the above tables to be considerably more fatal than amputations of the same parts, a fact which is well proved, but difficult to explain. Primary resections in the continuity of the humerus had, among us, a mortality of 12 per cent, and amputations of only 8 per cent. In attempting the same resection on the shaft of the femur, 66 per

cent died, which is 10 per cent worse than our experience in primary amputations in the middle of the thigh. Still, in the superior extremity, the use of the hand is so important that the operation may be risked, even on the humerus, in favorable cases, and in the inferior extremities, it is quite proper on the fibula and metatarsals. In the femur, the tibia, and the clavicle it is very fatal, and should not be performed, except in secondary cases accompanied by necrosis.

CONSERVATIVE SURGERY.

The question whether to operate or trust to nature is often a difficult one, which can only be decided by knowing what the risk is in cases not operated upon. The following tables throw a good deal of light upon this subject:—

GUNSHOT FRACTURES TREATED WITHOUT OPERATION.

Fracture.	Recov'd.	Died.	Pr ct. Mort. Sh'rm'n's Ar.	Pr ct. Mort. Sur.-Gen. Rep.	Pr ct. M. Reb. Ar.
Shoulder-joint	35	7	17		35
Humerus	33	7	17		
Elbow-joint	9	3	25		11
Forearm	43	1	2		
Wrist-joint	5				7
Hip-joint	4	10	71	100	100
Femur	64	68	51	63	
Knee-joint	25	42	63	84	51
Leg	33	17	34		
Ankle-joint	9	1	10		20
Foot	21	1	5		
Cranium {penetrat'g & non-pen}	5	13	78		
Face	15	1	6		

Table of Wounded Joints, treated in the Confederate Army without amputation (from Surg.-Gen. CHISHOLM's Report):—

Joint Wounded.	Recovered.	Died.	Joint Anchylosed.	Pr ct. of Deaths.
Shoulder	11	6	3	35
Elbow	50	5	22	11
Wrist	26	2	7	7
Hip		8		100
Knee	50	53	21	51
Ankle	23	6	1	20

There is something inexplicable in the Confederate statistics, as given in this table. That out of 103 wounds of the knee-joint, only 21 should become anchylosed, and only 53 died under conservative treatment, is, certainly, contrary to the experience of the rest of the world, and suggests the possibility either of typographical error, or else that some cases of wounds about the knee are included which did not penetrate the cavity of the joint.

The following conclusions are, on the whole, warranted by the figures:—

Conservative treatment of wounds of the shoulder-joint appears, at first glance, to be more successful than either resection or amputation. It is to be remembered, however, that the milder cases were saved and the worse ones operated upon, so that the comparison cannot be pressed. The impression made upon us by our experience, is this:—Cases where the joint is simply opened, or slightly fractured, should be treated without operation. Where the joint is much comminuted, resection should be preferred, and where the comminution is accompanied with destruction of the great axillary nerves and vessels, amputation is imperative.

In the elbow-joint, the mortality of the conservative treatment with us was 25 per cent, that of primary resections, 25 per cent, that of primary and secondary resections together, 33 per cent, and of primary amputation above the elbow, only 8 per cent, showing that amputation is the safest, resection the next, and conservative the most destructive treatment of wounds of the elbow-joint. Our figures for primary amputations above the elbow are more favorable than the experience of the rest of the world bears out. The mortality for primary and secondary amputations of the arm together in the U.S. Surgeon General's report, is 21 per cent, but even this is better than treatment without operation. On the whole, we prefer resection in all gunshot fractures of the elbow-joint in which the principal nerves are intact, but in case of destruction of these, amputation is the best. Conservative treatment will do in very slight fractures.

Compound fractures of the hip-joint were, in our experience,

treated conservatively, with a mortality of 71 per cent. The U.S. Surgeon-General, however, as well as the Rebel statistics, gives a mortality of 100 per cent for such treatment. These fractures are not always easily distinguished from extra capsular fractures of the neck of the femur, and it is possible that our results are made too flattering, by the inclusion of some of the latter in the list. The subject is one which needs further investigation.

Fracture of the femur between the articular extremities is a very fatal accident. A large portion of the patients die of shock during the first three days, under any treatment which may be adopted. In comparing conservative treatment with amputation, it must be remembered that fracture of the shaft of a femur, if amputated, requires the operation at the middle or upper third; hence, amputations at the lower third are excluded from the comparison.

Our results are, as follows:—

Mortality of cases treated without operation,--- 51 per cent.
" " " by resection in continuity of the shaft,---------- 66 "
Mortality of amputa. at Middle and Upper 3d, 63 "

showing an advantage of 10 or 15 per cent of treatment by splints and extension over operative procedures. We, therefore, were led to discourage amputation for fractures of the femur, except when necessitated by destruction of the nerves and vessels.

Great interest has been excited by the question whether amputation should be performed for penetrating wounds of the knee-joint. Our figures give for primary amputations just above the knee a mortality of 40 per cent; and for treatment of perforated knees, without operation, a death-rate of 63 per cent; giving a balance of 23 per cent in favor of primary amputation.

The Surg.-General recommends primary amputation at the knee-joint, and gives its statistical mortality in our army as 35 per cent. This operation was not practiced under our observation, but the evidence in its favor has become so strong that

in future wars it will probably be preferred in most cases of perforated knee-joints.

Treatment of fractures of the leg, without operation, give about the same risk as amputation below the knee. This method, therefore, should be adopted wherever there is hope of preserving a useful limb.

TREPHINING.

Only six cases of trephining were traced to their results. Of these, three were for wounds penetrating the brain, and all died. The other three were for depressed fractures not penetrating the brain, and all recovered. The statements of the Surgeon-General absurdly class the penetrating and non-penetrating fractures together, which renders it impossible to collate his figures with ours. The opinion which we have arrived at is, that non-penetrating gunshot fractures of the cranium require trephining in military as well as in civil practice, when the fragments are depressed, but that cases in which the bullet has passed into the brain are not benefitted by the operation, though as they all died alike, we can scarcely say that any harm was done. In penetrating fractures, the chief mischief is too deep to be helped by the trephine.

ANÆSTHETICS.

The anæsthetic used was almost exclusively chloroform. This agent was administered in about 3000 cases, and produced two deaths. The first death was that of Private J. W. Whitlock, Co. H, 111th Ill. Inf., wounded in the elbow-joint. On *post mortem* examination, the pericardium was found adherent and the lungs consolidated, showing prior disease of both organs.

The second case showed nothing on *post mortem* examination to account for the fatal result.

We have endeavored in these pages, to give a condensed and truthful statement of the materials in our hands, in order that impressions and facts, now fresh and valuable, may not be lost to the world. In conclusion, we wish to put on record an opinion impressed upon us by very large and varied observation, but which it is impossible to put in a tabular form, and it is

this:—A very great error has been committed in the anxiety of Medical Directors to gather the wounded into large general hospitals, where cots, white sheets and pillow-cases, and luxurious diet shall contribute to the comfort of the soldier, and where the general air of compactness and good order, and the fine appearance of the buildings shall favorably impress the public. It often happens that those very hospitals, which by their show of cots, sheets, clean floors, and well-cooked meals, extort praise from visitors, newspaper reporters, and even Medical Inspectors, are hothouses of death to the inmates, in consequence of the impossibility of perfect ventilation in the interior. Our experience shows, that in many of these fine hospitals soldiers die in large numbers, who would have recovered had their wounds been treated under a tent or a tree, on their blankets, by their regimental surgeons.

The very first necessity of a wounded soldier is absolutely pure air, such as cannot be had in most of the buildings selected for general hospitals, but when this requirement is fully met, it is astonishing what vigor the system often shows in repairing its injuries. The next great improvement needed in Military Surgery is a system of general hospitals which shall furnish air as pure as that of the open fields. When such a system shall be devised and put in operation, war will be stripped of a large percentage of the mortality at present following in its train.

NOTE.—The Confederate statistics given are derived from the Richmond *Medical Journal* and from a work issued by the Confederate Surgeon-General, for the instruction of his medical officers.

Selections.

SOME NOTES ON ARROW-WOUNDS.

BY ELLIOTT COUES, M.D., U.S.A.

During a residence of more than a year, in the interior of Arizona Territory, as surgeon of a United States Post, (Fort Whipple,) at a time when both our civil and military force was

in incessant warfare with the hostile Apaché Indians, the writer had numerous cases of arrow-wounds under his care, in private practice as well as in the line of official duty. As reports of injuries of this sort are by no means often brought into general notice, to the following desultory notes of wounds produced by the peculiar stone-headed arrows of the Indians just named, some little interest may possibly attach.*

The Apaché arrow consists of a light, tough reed, nearly or quite three feet long, at one end tri-feathered and slotted for the bow-string in the usual manner, and painted with some emblematical red and blue waved lines. Into the distal extremity is inserted a short and slender, but stout piece of firm wood, some eight or ten inches long, hardened and straightened in the fire, and thickly besmeared with a black, gummy substance.

The head is apparently a small and trifling affair, compared with the results it is capable of producing. It is made from some species of quartz, chalcedony, obsidion, etc., and is always either white or black in color. It is an inch or somewhat less in length, by about a-third of an inch in greatest width; in shape a narrow isosceles triangle. It is quite uniform in size and shape. I think I never saw one much over the dimensions stated. It is very thin, and its apex is chipped to an extremely fine point. Its sides have usually three, sometimes only one or two jagged notches near the base. Its bulbs are generally long and sharp. The base is notched where it rests on the shaft. In the end of the hardwood shaft, just described, is a slight notch, actually not so deep as that which receives the bow-string; on which is dropped a little very tenacious gum; and then the stone-head is lightly pressed into place. There is no projecting handle for insertion into the wood. No thongs or wrapping of any sort are used; and so frail is the connection between the head and shaft, that the Indians themselves are obliged to carry their arrows with great care.

The bow is a large, strong one, four to six feet long; almost straight to near either end, where it is abruptly much curved.

It will be seen that this weapon, the injuries from which we are to notice, is quite a different affair from the short, stout, heavy arrow, with a large and long triangular, or somewhat diamond-shaped soft metal head, bound by sinews to the shaft, used by the mounted Indians of the plains; although they agree

* For a very elaborate memoir on arrow-wounds, see Dr. G. H. Bill, U.S.A., in the *Amer. Journal Med. Sci.*, for Oct., 1862, p. 365; and compare nature of wounds by the strong, large, metal heads of the Navajos with those indicated in this paper.

in the respect, that both make very ugly wounds. I do not think that the penetrative force of the Apaché arrow equals that of the Comanché or Navajo. The characteristics of the Apaché arrow-head are essentially these: 1, its minute size; 2, its jagged edges and angles; 3, its extreme friability; 4, its very ready separation from the shaft; 5, its probable poisoning in some instances.

CASE. Illustrating consequences of minute size of arrow-head. Arrow horizontally entered outer aspect of thigh of a large muscular man, its wide axis parallel with fibres of m. vastus ext., severed profunda or one of its larger branches; hæmorrhage to fainting, and repeated. Saw patient three hours from reception of injury; after he had ridden, supported on either side, for five miles. He had pulled out the shaft immediately upon being struck. Very moderate swelling or increased heat of limb. Orifice of entrance a simple slit, 3-10ths of an inch long. By no amount of delicacy and patience in the manipulation of a small silver probe, with the limb in various positions, could the former be introduced more than about an inch. Head consequently undetectable, and therefore unextractible. Expectant treatment necessitated; nothing special to be done beyond ordinary constitutional care. The tumefaction rapidly abated; and the wound closed completely in a few days. No abscesses, or unusual amount of irritation from presence of stone; but the limb was weak and practically useless for several weeks. Two months afterward, the patient could *feel* the head on the inside of the thigh, close by the femoral; and motion, especially horse-back exercise, increased the vividness of his intelligent impression that there it was; although it was not to be detected by surgical palpation. It has already, or doubtless will be hereafter extracted by cutting in a manner not widely dissimilar from that for the operation of tying the femoral near the apex of Scarpa's triangle. This case is so well expressive of the essential characters of several others that fell to my lot, that they need not be here detailed. I soon learned to regard the innocent-looking little slit with anxious doubts of its directing me to the cause of it, when I saw it parallel with muscular fibres.

The above described kind of injury is evidently as near a "punctured" wound in essential characteristics, as can well be made by any edged weapon.

The jagged edges and sharp angles of the head, do not seem to be, at least in their affects upon muscular tissue, as pernicious as they are malevolent in appearance. They certainly

must decrease rather than aid the penetrative force or the arrow; and the amount of lacreation they are capable of producing is by no means a serious complication. I have thought indeed in some instances, that this degree of lacreation was the reverse of deprecable; affording more facile entrance to the probe, and afterward more ready exit to the inevitable pus.

At the same time the effect of these notches and angles is of importance with reference to the chances of the encysting of heads which cannot be traced and extracted. As might be expected, it is exceedingly rare that these sharply triangular and jagged bits of stone excite so little disturbance that the encysting process can be accomplished. This can only take place under some peculiarly favorable circumstances, as to position, etc. The irritation is almost invariably sufficient to excite suppuration; consequent abscesses, (unless the wound is very open;) and thus a gradual working of the head toward the surface; this "pointing" being often at a considerable distance from the place where it might have been expected. It is only rarely, I think that the head works out, *retrorsum*, along the track of its entrance.

The extreme friability of the head produces results which must be taken into consideration, as one of the most common and troublesome features of the wound. When the head impacts on bone—and it generally traverses soft tissue till halted in this way—the chances of its shivering into bits vastly preponderate over the probability of its becoming fixed or glancing.

Case. Arrow-head struck under edge of malar, rasped off some periosteum, shivered as it glanced downward, and over twenty minute fragments, (in addition to two or three large ones extracted,) came away gradually from the fat and muscle lying under this bone.

Case. Arrow-head struck transverse process of eleventh dorsal vertebra; shivered; fortunately without glancing into the thorax. Three large pieces extracted immediately. Numerous smaller fragments came away in the suppuration.

Case. Arrow-head struck inferior angle of scapula. A large piece was at once extracted, which represented the whole of the head except about a fourth of an inch of its apex, which was firmly fixed in the bone. As this bit would not have been extractible except by much cutting, and then prying and wrenching, I somewhat hesitatingly allowed it to remain; possibly an injudicious procedure, although warranted by the result. The wound closed completely in about two weeks, and there

were not, at least during the several subsequent months that I was with the patient, any unfavorable symptoms.

The above cases could be multiplied, but are sufficient for my present purpose. It will be evident that we need not be afraid of a little judicious audacity in the division of muscular tissue, while cutting a way for our forceps, since the enlarged orifice is favorable, if not indeed necessary, for the ready discharge of pus as well as of quartz débris. This same indication, so important to be fulfilled must also govern all subsequent dressing of the wound. *Dress openly;* better not dress at all, than occulade the orifice. Particularly be careful that subjacent tissue is sound, before allowing integument to reunite.

Occasionally an arrow-head will neither shiver nor impact; but on striking bone in an exposed situation, *e.g.*, tibia, ulna, etc., will rebound with great force. CASE. Head struck middle of outer aspect of ulna, and rebounded. Resulting injury more of an ulcer than anything else. A scab rapidly formed; seeing which I merely protected it from friction by the clothes, and it "got well itself" directly.

So frail is the connection between the head and the shaft, that in all my little experience, I never saw or heard of an instance in which the former was removed on pulling out the latter. I do not see very well how it can occur, provided the head be buried beyond its barbs. For the matter of that, as the shaft produces ordinarily next to nothing of the sum total of injury, we may regard the missile as practically consisting of the head alone. The shaft is almost invariably seized and jerked hurriedly out by the patient at the moment of being struck. The not the less comical because painful sight of a man thus porcupinized rarely falls to the surgeon's lot, unless he is verdant or unlucky enough to get mixed up in a bush fight himself. But we must receive with great caution all opinions expressed by the patient, to the effect of his having withdrawn the head or even the whole of the shaft; for in the flurry of the moment, he does not examine what he so hurriedly pulls out; and the head he found in his clothes and presents triumphantly in proof was just as likely detached from some other arrow, which had not force to penetrate further. Again, this frantic wrenching at the stick may break off a portion of it inside. We cannot examine the wound too thoroughly before making a diagnosis. Let the following most interesting, and decidedly most mortifying case, which occurred in my private practice, exemplify these remarks.

CASE. J. Blank, young and vigorous and moderately mus-

cular subject. Arrow entered muscles on side of back of neck, and coursed downward and forward. The head was plainly to be felt just below the clavicle of the same side. The patient stated he had pulled out the shaft immediately on being struck, some twelve hours previously. Only experienced pain when my finger pressed on the head. Feeling the latter so plainly, in front, under the clavicle, and apparently only about half an inch deep, it by no means occurred to me to stick a probe into the wound some six inches or more, for the sake of feeling it from behind; but I at once prepared to extract the head. Seated on a stump, and my patient on a barrel in front of me, the heat and flies intolerable, and only a soldier to assist, I cut carefully down upon the head by an incision parallel with the under edge of the clavicle. I found it lying on the first rib, *between it and the subclavian artery*, which latter had been somewhat shoved aside, but luckily quite uninjured. The artery was directly under my finger, and I think I could have tied it in the last portion of its course, by slightly enlarging upon the operation. I extracted about three-fourths of the head in one large piece, and afterward nearly all the rest in another smaller fragment; a little bit, however, was left in, as I could not readily find it, and no one cares particularly to poke about with a probe in the supra-clavicular triangle. A great deal of pus had followed my reaching the head with a knife; the axilla was padded and strapped tightly in view of possible abscesses; and the wound dressed openly, trusting that the fragment would come out with the suppuration; as indeed was shortly afterward the case.

But still the cut I had made continued to discharge inordinate quantities of pus. The original wound meanwhile quite healed; while the cut whence the head was extracted assumed gradually the characters of a fistula and showed no signs of closing. The patient became weak and emaciated, with considerable hectic fever, though at no time confined to his bed. Serious and distressing pulmonary symptoms had come on, chiefly indicating abscess in the chest. The patient not being under my charge except for a few days immediately after the operation, I only saw him occasionally and accidentally, and therefore cannot give more detailed notes than the above. Meeting him one day, I was surprised to learn that a piece of the shaft of the arrow, about three inches in length, had been extracted from his chest, far into which it had gradually worked. At the time I operated, it must have been lying in the muscles of the side of the neck. Simple introduction of the probe from

behind would have revealed its presence and saved the poor fellow much suffering, and myself much mortification; as it could have been drawn out with the utmost ease then, had I had an idea of its presence.

"Do the Apachés poison their arrows?" is a question often asked me; and it is currently reported that they dip the heads in a deer's liver, after forcing a rattlesnake to bite it, and then allowing it to putrefy. I reply most unhesitatingly that as a general rule they *do not*, no other than the consequences of mechanical violence following in the vast majority of instances. Still I cannot affirm that such is never the case; witness the following case, in which it is difficult to account for death except upon the supposition that some toxic agent complicated a simple wound.

Case. Private G. S., Co. F. 5th U.S. Inf. Arrow-head entered the muscles of the back, just over the lower part of the shoulder-blade; passed very obliquely upward and a little inward, chipping a bit off the scapular spine. The orifice of entrance was very small, and rounder and more jagged than usual. A probe passed to its full length readily enough, but no foreign body could be felt by it. The man was positive that the head had come out when he drew the shaft; a statement, however, to be regarded as very problematical. He complained most of pain in the muscles of the side of the neck, which was swollen and stiff in about the locality to which I had been able to pass the probe. No suspicious substance could be detected after careful palpation; and a simple expectant plan of treatment was forced upon me. The wound soon began to suppurate profusely; the discharge at first tolerably "laudable," but quickly changed to a thin, ichorous, reddish-brown fluid; mixed with which was a considerable quantity of almost pure, very dard, clotted blood; and later, shreds or masses of apparently disintegrated tissue. The orifice was enlarged; and every precaution taken to facilitate discharge and prevent abscesses; nevertheless, they began to form rapidly, and at points down the back more and more remote from the original seat of the injury. These were evacuated as soon as detected. The patient began to rapidly sink under the profuse discharge; anorexia, insomnia, vomiting, diarrhœa, and an excessively irritable and desponding state of mind, successively made their appearance; in the latter stages there was considerable delirium; and finally, in spite of all that could be done for him, he died comatose, about three weeks after receiving the injury.

Autopsy revealed that all the muscles of that side, from the

occupit nearly to the hip, were in a state of disintegration; dark-colored, soft in consistency, looking in fact much like decaying liver, and having and exceedingly offensive odor. The arrow-head could not be found, after a most diligent search. It had not penetrated the thorax, nor yet had it worked into the abdominal cavity; for the parieties of both were intact. To this day the exact course of the arrow, and why it should have produced such anomalous results remain a mystery to me. But I can affirm positively that the injury which proved fatal was confined to the muscles of the back; and the sum total of its immediate effect that described above.

The constitutional disturbances following these arrow-wounds, even when the injury is confined to bone or muscle, are liable to be out of all proportion to the apparent amount of damage done. There is almost always considerable febrile action, more or less complete anorexia and sleeplessness, and derangement of all the secretions. To these may be added great irritability and intolerance of a moderate degree of pain, much dejection of spirits, haggard and anxious countenance, etc. The tendency to despondence becomes frequently a prominent symptom to be combatted, and everything should be done to cheer the patient.

I would in conclusion offer a few simple rules for the treatment of this kind of injury:—

1. Explore the wound thoroughly, even should much division of muscular tissue be thereby necessitated.

2. Extract the last fragment that can by any means be laid hold of, and cleanse the wound thoroughly.

3. Dress very lightly and openly, facilitating by every means the ready discharge of pus; watching for burrowing and abscesses, and evacuating them as soon as detected.

Attend promptly and vigorously to constitutional symptoms, combatting them by the ordinary well-known means.—*Phila. Med. & Surg. Reporter.*

ON A CERTAIN FORM OF HÆMOPTYSIS, UNASSOCIATED WITH PULMONARY TUBERCULOSIS.

By RICHARD PAYNE COTTON, M.D., F.R.C.P. Lond. Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

Hæmorrhage from the lungs, to a greater or less degree, is so frequently found in connexion with a tubercular condition of the chest, that its diagnostic value, as a separate symptom, is

very apt to be overrated. In the early period of my attendance at the Brompton Hospital for Consumption, I saw so much hæmoptysis amongst the unmistakably phthisical out-patients, that I was sometimes tempted to the general conclusion that hæmoptysis was, practicably, but another name for phthisis. Subsequent and more extensive observation has, however, very much changed my views in this particular; and I am now fully convinced that hæmoptysis is met with in a very considerable number of non-tubercular cases. Simple pulmonary congestion, whether the result of inflammatory action, or arising from mechanical obstruction consequent upon heart-disease; pneumonia, whether acute or chronic; bronchitis; general plethora, —may at any time give rise to hæmorrhage from the lungs. I have seen, indeed, most active bleeding where some of these conditions have been combined—as in congestive bronchitis in persons of plethoric habit. To this list, congested states of the pharynx, tonsils, and gums might fairly be added; but I wish my present observations to apply to hæmoptysis, not in its literal sense, but as it is now usually employed—as hæmorrhage *from the lungs*. In a future communication I propose to enter upon the various forms which hæmoptysis, under these several conditions, is disposed to assume. In the present instance I am anxious only to draw attention to a not unfrequent, but, so far as I know, little recognized form of non-tubercular hæmoptysis, met with chiefly in the female sex, but sometimes also amongst males, generally in the early period of life.

It may simplify my description of this variety of hæmoptysis if I give a brief account of two or three cases in point.

A young lady, aged 18, recently arrived from a residence in one of the West India Islands, was supposed to be phthisical. I was requested to see her, and report upon the nature of her disease, about which several very conflicting opinions had already been given. She was anæmic, nervous, and out of health; had a dry cough, but had not become thinner; her catamenia were regular, but scanty; her appetite was capricious; and she had had frequent hæmoptysis, which there was every reason to believe did not proceed from either the mouth or fauces. The blood upon examination was found to be thin and watery, of a dark color, free from coagulum, unassociated with either bronchial or salivary secretion, and in general appearance much resembling a mixture of *red-currant jelly and water*. I was informed that this was its general character. Sometimes it had been considerable—as much as half a pint in twenty-four hours; at others, it would not exceed a teaspoonful

or two during the same period; sometimes it would be scarcely enough to tinge a pocket-handkerchief, and often it would disappear for days together. This state of things had existed for nearly two years, causing great anxiety to the patient and her friends, from a belief that it was indicative of pulmonary disease. Careful examination of the chest, however, failed to elicit any evidence that such was the case. Rest, change of air, and the tincture of sesquichloride of iron, entirely restored this patient to health. It is now more than three years since I was consulted, and I heard a short time back that the young lady was in perfect health.

A case very similar to this came under my notice two years ago, in consultation with Mr. Humpage, of Upper Seymour-street. A young lady aged 24, had long been delicate, and was supposed by her family to be consumptive. She had become thinner; had had a dry cough for some length of time; and had spat blood. Upon examination, this was found to present an appearance very similar to that described in the preceding case; it looked in fact, more like watery red-currant jelly than anything else. As in the other patient, there were no decided physical signs of tubercular disease; and we came to the conclusion that the patient was not phthisical. Time has justified our diagnosis; Mr. Humpage having lately informed me that the young lady had, for many months, lost the symptom which had caused so much alarm, and was in good health.

Another case, which I shall even more briefly relate, came under my notice about 18 months back. It was that of a young lady, 12 years of age, of slender and somewhat delicate appearance, but free from every symptom of tubercular affection. Mr. J. N. Winter, of Montpeiler-road, Brighton, frequently saw this patient, and quite agreed with me as to the nature of her disease. She first alarmed her parents by spitting up, just after going to bed one night, a considerable quantity of blood. This was found upon examination to be watery and dark-colored—in fact, of the *thin red-currant jelly character* already described. This symptom has recurred at various intervals with more or less intensity, and the child still remains delicate, but without any indications of tubercular disease. At the time of her attacks her tonsils and pharynx are somewhat conjested, her gums spungy, and her fingers even have sometimes exuded a little watery blood, just as one sometimes sees in extreme cases of purpura. It is evident that, in this instance, the blood escapes not only from the mucous membrane of the respiratory passages, but also from that of the throat, tonsils, and gums.

Other cases of this form of hæmoptysis have fallen under my observation; but I shall not specially refer to them in consequence of not knowing their sequel. At least 12 or 13 have happened in my own wards at the Hospital for Consumption. Two only of these were males; the rest were females, generally of delicate and nervous appearance, and under the age of 30. Several had very suspicious symptoms of phthisis; but the physical signs failed to exhibit any evidence of pulmonary tuberculosis, and most of them improved in health under appropriate treatment. In every case the expectoration was of the same general character; sometimes it was mixed more or less with bronchial mucus, slightly tinged perhaps with blood, and sometimes with salivary secretion; but more frequently it was simply watery blood, resembling, as I have described, a mixture of red-currant jelly with water.

The following are the conclusions at which I have arrived from a consideration of the preceding notes:—

1st. There is a form of true hæmoptysis in which the expectoration is of a dark color, and of a more or less watery consistence, bearing a close resemblance to a mixture of red-currant jelly and water.

2d. That such hæmoptysis is of non-tubercular origin, and may proceed from any part of the gastro-pulmonary mucous membrane.

3d. That it is attributable to a morbid and fluid condition of the blood, allied, at least in appearance, to that which is met with in purpura and scurvy.—*London Lancet.*

NEW AND READY MODE OF PRODUCING ANÆSTHESIA.

Dr. B. W. Richardson has been for some years engaged in researches for the production of local anæsthesia. Snow maintained that all narcotics produced anæsthesia by the process of arresting oxidation. Dr. R. has come to the conclusion that arrest of oxidation means arrest of motion, and that anæsthesia means the temporary death of a part, *i.e.*, inertia in the molecules of the part. This led him to the conclusion that Dr. Arnott's plan of using extreme cold was the first true step in the progress of discovery, and that if it could be made easier of application, and at the same time could be combined with the use of a narcotic fluid an important advance in therapeutics

would necessarily follow. Dr. R. has been for four years engaged in experimenting with a view of demonstrating this. Finally he has devised an apparatus consisting "simply of a graduated bottle for holding ether; through a perforated cork a double tube is inserted, one extremity of the inner part of which goes to the bottom of the bottle. Above the cork a little tube, connected with a hand bellows, pierces the outer part of the double tube, and communicates by means of the outer part, by a small aperture, with the interior of the bottle. The inner tube for delivering the ether runs upwards nearly to the extremity of the outer tube. Now, when the bellows are worked, a double current of air is produced, one current descending and pressing upon the ether forcing it along the inner tube, and the other ascending through the outer tube and playing upon the column of ether as it escapes through the fine jet. By having a series of jets to fit on the lower part of the inner tube, the volume of ether can be moderated at pleasure; and by having a double tube for the admission of air, and two pairs of hand bellows, the volume of ether and of air can be equally increased with pleasure, and with the production of a degree of cold six below zero.

"By this simple apparatus, at any temperature of the day and at any season, the surgeon has thus in his hands a means for producing cold even six degrees below zero; and by directing the spray upon a half-inch test-tube containing water he can produce a column of ice in two minutes at most. Further, by this modification of Siegle's apparatus he can distribute fluids in the form of spray into any of the cavities of the body—into the bladder, for instance, by means of a spray catheter, or into the uterus by an uterine spray catheter.

"When the ether spray thus produced is directed upon the outer skin, the skin is rendered insensible within a minute; but the effects do not end here. So soon as the skin is divided the ether begins to exert on the nervous filaments the double action of cold and etherization; so that the narcotism can be extended deeply to any desired extent. Pure rectified ether used in this manner is entirely negative; it causes no irritation, and may be applied to a deep wound, as I shall show, without any danger. I have applied it to the mucous membrane of my own eye, after first chilling the ball with the lid closed.

"I have now employed this mode of producing local anæsthesia in four cases on the human subject. The first case was the extraction of a tooth from a lady, the operation being performed by my friend and neighbor Dr. Sedgwick, on January 24th of

this year. On the 29th of the same month, I used it again on the same lady for the extraction of three very difficult teeth, Dr. Sedgwick again operating. The results were as satisfactory as in the previous case, where the ice and salt ether apparatus was used.

"I have used the apparatus also in connection with my friend Mr. Adams, who had a case at the Great Northern Hospital of deep dissecting abscess in the thigh of a young woman. In the abscess there was a small opening, which just admitted the director. I first narcotized around this opening, and the director being introduced, Mr. Adams carried his bistoury nearly an inch deep and one inch in the line of the director. I then narcotized the deep-seated parts, and enabled him to cut for another inch and a-half in the same direction. The director was then placed in the upper line of the abscess, the process was repeated, and the incision was carried two and a-half inches in that direction. The patient was entirely unconscious of pain, and after narcotising the whole of the deep surface, Mr. Adams inserted his fingers and cleared out the wound without creating the slightest evidence of pain.

"Afterwards, in the case of a lacerated wound, six inches long, in the arm of a boy, who had been injured with machinery, I narcotized while six sutures were introduced by Mr. Adams. The first needle was carried through without the anæsthetic, and caused expression of acute pain; the remaining eleven needles, after a few seconds' administration of the ether spray, were passed through painlessly. The twisting of the wire sutures gave no pain.

"These results are so interesting that I make no apology for bringing them at once before my medical brethren. I wish it to be distinctly understood that at the present moment I only introduce the method here described for the production of superficial local anæsthesia. It is, I believe, applicable to a large number of minor operations, for which the more dangerous agent chloroform is now commonly employed—I mean such operations as tooth extraction, tying nævus, tying piles, incising carbuncles, opening abscesses, putting in sutures, removing small tumors, removing the toe-nail, dividing tendons, operating for fistula, removing cancer of the lip, and other similar minor operations which I need not mention. The process may also be applied to reduce local inflammation.

"In course of time, and guided by experience and the advancement of science, we may, however, expect more. If an anæsthetic fluid of negative qualities, as regards irritation of

nerve, and which has a boiling point of 75° or 80° can be obtained from the hydrocarbon series, the deepest anæsthesia may be produced, and even a limb may be amputated by this method. It may also turn out that certain anæsthetics may be added to the ethereal solution with advantage, such as small quanties of chloroform, or some of the narcotic alkaloids, if they could be made soluble in ether. A solution of morphia and atropia combined, if they could be diffused through ether, which at present seems impossible, could thus be brought into action so as to cause deep insensibility. In operating on the extremities it would be good practice to stop the current of warm blood by making pressure above on the main artery.

"Reaction from the anæsthesia is in no degree painful, and hemorrhage is almost entirely controlled during the anæsthesia.

"One or two precautions are necessary. It is essential, in the first place, to use pure rectified ether; methylated ether causes irritation, and chloroform, unless largely diluted with ether—say one part in eight—does the same."—*Med. Times and Gazette*, Feb. 3, 1866.

CAUSES OF INTERMITTENT AND REMITTENT FEVER.

Prof. J. H. Salisbury communicates to the *American Journal of Medical Sciences* an elaborate article, giving an account of numerous observations and investigations regarding the origin and cause of intermittent fever. Dr. Salisbury found on microscopic examination of the salivary secretion and expectoration of those laboring under intermittent fever, and who resided upon ague levels, and were exposed to the evening, night, and morning exhalations and vapors arising from stagnant pools, swamps, and humid low grounds, that there occurred in these secretions a great variety of zoosporoid cells, animalcular bodies, diatoms, dismidiæ, algoid cells and filaments, and fungoid spores. Constantly and uniformly found in all cases, and usually in great abundance, were minute oblong cells, either single or aggregated, consisting of a distinct nucleus, surrounded by a smooth cell-wall, with a highly clear, apparently empty space between the outside cell-wall and the nucleus. They were fungoid, but cells of an algoid type, resembling strongly those of the *palmellæ*. In persons residing *above* the summit plane of ague, the bodies were invariably absent.

By a series of carefully conducted experiments and observations, the following facts were ascertained:—

1. That cryptogamic spores, and other minute bodies, are mainly elevated above the surface during the night. That they rise and are suspended in the cold damp exhalations from the soil, after the sun has set, and fall again to the earth soon after it rises.

2. That in the latitude of Ohio, these bodies seldom rise above from thirty-five to sixty feet above the low levels. In the northern and central portions of the State they rise from thirty-five to forty-five feet, while in the southern, from forty to sixty feet.

3. That at Nashville and Memphis they rise from sixty to one hundred feet and more above the surface.

4. That above the summit plane of the cool night exhalations, these bodies do not rise, and intermittents do not extend.

5. That the day air of malarial districts is quite free from these palmelloid spores, and from causes that produce intermittents.

Palmellæ belong to the lowest known vegetable organisms. The several forms of this type which are constantly attendant on intermittent malarial districts, have received the generic name *gemiasma* (earth miasma), of which Dr. Salisbury enumerates six species.

In another series of extended observations, the local effects produced in the mouth and air-passages by inhaling these cells, are minutely described. They cause a dry, feverish, constructed feeling in the mouth, fauces, and throat, increasing until the fauces become parched and feverish, normal mucous discharges become checked, and the feeling soon extends to the bronchial and pulmonary surfaces, which also become dry, feverish, and constricted, with a heavy congested sensation and dull pain. These peculiar symptoms generally last several hours after leaving the bog.

The author has made experiments relative to the production of intermittent fever in localities entirely free from malarial influence, by carrying boxes filled with surface earth from a malarious drying prairie bog, covered with the *palmellæ*, to these localities, and exposing persons to their emanations. Attacks of intermittent were the result.

The investigations of Dr. Salisbury must be considered highly important, as they establish positively the *fons et origo* of malarious fever.

Dr. E. Holdon, of Newark, N.J., late of the U.S.N., communicates a paper to the same journal, entitled, "An Inquiry into the Causes of certain Diseases on Ships of War," in which

he expresses his opinion that fever of an intermittant type is produced by the growth of mould on board of ship, under the action of hydro-sulphuric acid of the bilge.—*Med. and Surg. Reporter.*

PROCESS OF DISINFECTION.

A memorandum on disinfection has been issued by the Privy Council, (Great Britain). In view of the approaching epidemics, we give its main points, after the *Chemical News and Druggists' Circular:*—

"1. For artificial disinfection, the agents most useful are—chloride of lime, quicklime, and Condy's manganic compounds. Metalic salts—perchloride of iron, sulphate of iron, and chloride of zinc, are applicable. In certain cases chlorine gas or sulphurous acid gas may be used; and in other cases powdered charcoal or fresh earth.

"2. If perchloride of iron or chloride of zinc be used, the common concentrated solution may be diluted with eight or ten times its bulk of water. Sulphate of iron or chloride of iron may be used in the proportion of a pound to a gallon of water, taking care that the water completely dissolves the sulphate of iron, or has the chloride of lime thoroughly mixed with it. Condy's stronger fluid (red) may be diluted with fifty times its bulk of water; his weaker fluid (green) with thirty times its bulk of water. When the matters requiring to be disinfected are matters having an offensive smell, the disinfectant should be used till this smell has entirely ceased.

"3. In the ordinary emptying of privies or cesspools, use may be made of perchloride of iron, or chloride of zinc, or of sulphate of iron. But where disease is present, it is best to use chloride of lime or Condy's fluid. Where it is desirable to disinfect, before throwing away the evacuations from the bowels of persons suffering from certain diseases, the disinfectant should be put into the night-stool or bed-pan when about to be used by the patient.

"4. Heaps of manure, or of other filth, if it be impossible or inexpedient to remove them, should be covered to the depth of two or three inches with a layer of freshly burnt vegetable charcoal in powder. Freshly burnt lime may be used in the same way, but is less effective than charcoal. If neither charcoal nor lime be at hand, the filth should be covered with a layer of some inches thick of clean dry earth.

"5. Earth near dwellings, if it has become offensive or foul by the soakage of decaying animal or vegetable matter, should be treated on the same plan.

"6. Drains and ditches are best treated with chloride of lime, or Condy's fluid, or with perchoride of iron. A pound of good chloride of lime will generally well suffice to disinfect 1000 gallons of running sewerage; but, of course, the quantity of disinfectant required will depend upon the amount of filth in the fluid to be disinfected.

"7. Linen and washing apparel requiring to be disinfected should without delay be set to soak in water containing per gallon about an ounce either of chloride of lime or Condy's red fluid. The latter, as not being corrosive, is preferable. Or the articles in question may be plunged at once into boiling water, and afterward, when at wash, be actually boiled in the washing water.

"8. Woollens, bedding, or clothing which cannot be washed, may be disinfected by exposure for two or more hours in chambers constructed for the purpose to a temperature of 210 to 250 degrees Fahrenheit.

"9. For the disinfection of interiors of houses, the ceilings and walls should be washed with quicklime water. The woodwork should be cleansed with soap and water, and subsequently washed with a solution of chloride of lime, about two ounces to the gallon.

"10. A room, no longer occupied, may be disinfected by sulphurous acid gas or chlorine gas—the first by burning in the room an ounce or two of flowers of sulphur in a pipkin; the second by setting in the room a dish containing a-quarter of a pound of finely-powdered black oxyd of manganese, over which is poured half a pint of muriatic acid, previously mixed with a-quarter of a pint of water. In either case, the doors, chimney, and windows of the room must be kept carefully closed during the process, which lasts for several hours."

THE PROFESSION IN PARIS.—There are in the French capital 1848 doctors of medicine 375 medical men of the second grade, and 740 midwives. Among these, 340 are members of the Legion of Honor, 94 are officers of the same legion, 26 commanders, 1 grand officer, and 1 grand cross. There is about one medical man for 800 inhabitants, reckoning the population at 1,800,000, and taking the whole of the department of the Seine, which includes 2223 professional men.—*London Lancet.*

Editorial.

AMERICAN MEDICAL ASSOCIATION.

ANNUAL MEETING, AT BALTIMORE, MD., MAY 1ST, 1866

This Association met in Concordia Hall, on Eutaw Street, Baltimore, and was called to order by the President, D. Humphrey Storer, of Boston, at 11 A.M., of May 1st, 1866. The number in attendance was large, and embraced delegates and members from all parts of the country. An appropriate prayer was made by Rev. Dr. SPEER, of Baltimore; after which, Dr. C. C. Cox, Chairman of the Committee of Arrangements, in an eloquent address, tendered the members of the Association a cordial reception, both by the profession and the citizens of Baltimore. The Committee also reported the names of such delegates and members as had been registered up to that time.

The election of members by invitation being in order, Dr. Jas. E. Rives, of Fairmount, West Virginia, was elected, and the rule suspended to enable Dr. C. C. Cox, of Baltimore, to make a statement in relation to the expulsion of Dr. M. A Pallen, during the annual meeting in Boston the preceding year. Dr. Cox stated that, since the last meeting, Dr. Pallen had placed in his hands such evidence and documents as were entirely satisfactory to his own mind, that the statements on which Dr. Pallen was expelled were without foundation; and, as he had moved the expulsion of Dr. Pallen last year, he was desirous of embracing the first opportunity to restore him to his former position. He therefore moved that the papers and documents in his possession be referred to the Committee on Ethics, with instructions to report as early as practicable. After a little discussion the motion was adopted, and the committee made to consist of Drs. Hooker, of Connecticut, Brinsmade, of New York, and Davis, of Illinois. At a subsequent part of the same morning session, the committee made the following report, which was unanimously adopted:—

"The committee, to whom were referred the papers in rela-

tion to the expulsion of Dr. Montrose A. Pallen, at the meeting of the Association in Boston, respectfully report that they have examined the documents and evidence referred to them, embracing papers endorsed by Lieut.-Gen. U. S. Grant, the Vice-Consul of the United States at Montreal, and many citizens of Missouri, and are fully satisfied that the statements on which his expulsion was based were entirely unfounded, and, therefore, regretting the injustice done, both to Dr. Pallen and the Association, we recommend the adoption of the following resolution:—

"*Resolved*, That the preamble and resolution adopted by the Association at the Annual Meeting in Boston, June, 1865, expelling Dr. Montrose A. Pallen, be hereby rescinded, and that he be restored to his previous membership in the Association."

Dr. Pallen, who was present as a delegate from the St. Louis Medical Society, was then introduced and received the cordial greeting of the Association.

Dr. D. H. Storer, of Boston, the President of the Association, read his annual address, which was listened to with marked attention. It related chiefly to a subject that has elicited much discussion, both in this country and Europe, *viz.*, how far specialties and specialists should be encouraged and recognized in our profession. The thanks of the Association were tendered to Dr. Storer for his address, and a copy requested for publication in the Transactions.

The whole list of special committees was then called, and such reports as were ready, together with such volunteer communications as were presented, were referred to the appropriate Sections for consideration.

On motion, Dr. E. Brown-Séquard was invited to address the Association, on the Treatment of Nervous Disorders, at 11 o'clock A.M. on Wednesday.

Dr. Jewell announced that Dr. Marsden, of Quebec, Canada, was present, and, on motion, he was elected a member by invitation, and requested to take a seat on the platform.

The Association then adjourned until 9 o'clock A.M. of Wednesday, the afternoon being occupied by the Sections in

hearing and discussing such subjects as had been referred to them.

WEDNESDAY, MAY 2D—SECOND DAY.

The Association was called to order at 9½ o'clock A.M., the President, D. H. Storer, of Boston, in the Chair.

After some business notices by Dr. Cox, Chairman of the Committee of Arrangements, Drs. J. A. Reed, W. Whitridge, L. M. Eastman, of Baltimore, and Dr. Peter Parker, of China, were elected as members by invitation.

The reports of the Committee on Publication and of the Treasurer were read, accepted, and ordered on file. These reports showed that the publication of the last volume of Transactions had left the treasury in debt to the publishers to the amount of $404.52. This was owing, in part, to the expensive character of many of the illustrations, especially those accompanying the prize essay.

The Association then took a recess of fifteen minutes, to enable the delegates from each State to select one of their own number, to constitute a committee whose duty it should be to nominate officers for the ensuing year.

After the recess, the regular order of business being the reports of standing committees, the Committee on Medical Education was called, when Dr. S. D. Gross, of Philadelphia, Ch'n. of the Committee, stated that no report had been prepared, partly, at least, from the fact that the members of the Committee resided so far apart that no conference could be had on the subject referred to them.

Dr. Charles A. Lee, of New York, Chairman of the Committee on Medical Literature, proceeded with the reading of his report, but before completing it the hour of 11 o'clock A.M. arrived, which had been fixed for hearing an address from Dr. E. Brown-Séquard. The further reading was suspended, and the report referred to the Committee on Publication. The report of Dr. Lee was lengthy, and contained some topics and observations of doubtful propriety. It should have received a more careful consideration before its reference for publication.

Dr. Brown-Séquard took the platform and entertained the

Association for one and a-half hours, in a most interesting and profitable discussion of the subject of Nervous Affections and their Treatment.

On motion, the thanks of the Association were tendered to Dr. Brown-Séquard, and a copy of his lecture requested for publication.

The hearing of reports from standing committees was resumed, and Dr. E. Elliott presented the report of the Committee on Prize Essays, by which it appeared that four essays had been presented to the committee. The committee recommended two of these for prizes, *viz.*:—one, "On Health in Country and City," by W. F. Tounes, M.D., of New York; and one "On Digitaline, its Properties chemically and therapeutically considered," by S. R. Percy, M.D., of New York. The report of the committee was accepted and referred to the Committee of Publication.

Dr. W. Hooker, of Conn., Chairman of the Committee on Ethics, presented a report on the subject of Specialties, which was referred to the committee at the previous annual meeting. After hearing the report, its consideration was made the special order for 9½ o'clock A.M., on Thursday, and immediately after its disposition Dr. Marsden, of Canada, was invited to address the Association on the subject of Cholera and Quarantine.

The presentation of resolutions being in order, Dr. W. Hooker offered a resolution, declaring that no paper should be received by the Association, unless completed so as to be ready for direct transmission to the Publication Committee, without retention or revision by the author; which was adopted.

Dr. J. F. Hibbard, of Ind., presented a preamble and resolution, approving of the action of a convention of delegates from Western Colleges, recently held in Cincinnati, proposing a longer annual lecture term and a more uniform rate of fees, the consideration of which was made the special order for 11 o'clock A.M. of Thursday.

Resolutions of respect and condolence were offered in regard to the late Dr. James Couper, of Delaware, Dr. Jos. M. Smith, of New York, and Dr. D. L. McGugin, of Iowa, recently deceased, which were unanimously adopted.

On motion of Dr. M. K. Taylor, of Iowa, a committee of one from each State represented was appointed to prepare a memorial to Congress, asking for an appropriation sufficient for the early publication of the medical and surgical history of the war for subduing the recent rebellion, as prepared under the direction of the Surgeon-General of the U.S.A.

The Association then adjourned, to 9 o'clock A.M., of Thursday; the afternoon being devoted to scientific investigations in Sections.

THURSDAY, MAY 3D—THIRD DAY.

The President, Dr. D. H. Storer, called the Association to order at 9 o'clock A.M.

After some miscellaneous business, the special order for 9½ o'clock was taken up. A majority and minority report on the subject of *Specialties* were read and discussed at considerable length; when, on motion, the whole subject was postponed until the next annual meeting.

Dr. Marsden, of Canada, then occupied the attention of the Association for one and a-half hours, in giving a detailed description of his plan of quarantine, designed to prevent the introduction of cholera into the country. The views of Dr. Marsden are founded on the supposition that cholera is contagious, and can be prevented wholly by rigid quarantine and isolation. The subject was made the special order for consideration at 5 o'clock P.M.

Dr. N. S. Davis, Chairman of the Committee on Nominations, asked and obtained leave to report, as follows:—For President of the Association, H. F. Askew, of Delaware; For Vice-Presidents, Wm. K. Boling, of Tenn., J. C. Hughes, of Iowa, H. I. Bowditch, of Mass., and T. C. Brinsmade, of New York; Permanent-Secretary, W. B. Atkinson, of Penn.; Assistant-Secretary, W. W. Dawson, of Ohio; Treasurer, Caspar Wistar, of Penn.; For Committee of Arrangements, J. A. Murphy, James Graham, R. R. McIlvaine, J. P. Walker, W. T. Brown, and W. B. Davis, all of Cincinnati, O.; Committee on Publication, the same as at present; Committee on Education, S. D. Gross, D. F. Condie, John Bell, of Philadelphia, H. J. Bigelow, of

Boston, and Chas. A. Pope, of St. Louis; Committee on Medical Literature, A. C. Post, James Anderson, A. D. Noyes, T. G. Thomas, and Stephen Smith, all of New York; Committee on Prize Essays, F. Donaldson, Jos. Simpson, C. C. Cox, E. Warren, and W. C. Van Bibber, all of Baltimore. The Committees on Climatology and Epidemics, and on American Medical Necrology, were recommended to be continued, with only a few changes and additions.

The next annual meeting was recommended to be held in Cincinnati, on the first Tuesday in May, 1867.

On motion, the report of the Nominating Committee was accepted and adopted by a unanimous vote.

The Association then went into Committee of the Whole, for considering the preamble and resolution concerning the action of Western Medical Colleges on the subject of extending the lecture terms and fees; Dr. J. F. Hibbard, of Indiana, in the Chair. A very interesting discussion ensued, which was participated in by Drs. Wright, of Cincinnati, Storer, of Boston, Hooker, of New Haven, Davis, of Chicago, and Allen and Anticell, of Washington. Dr. Davis offered the following, as a substitute for the preamble and resolution under discussion:—

Resolved, That this Association earnestly request the Medical Colleges of the country to hold a convention for the purpose of thoroughly revising the present system of medical college instruction, and that a committee be appointed to aid in carrying the resolution into effect.

The substitute was adopted, and the Committee of the Whole rose and reported.

On motion, the action of the Committee of the Whole was concurred in by the Association, and the President appointed Drs. N. S. Davis, of Chicago, W. Hooker, of New Haven, S. D. Gross, of Philadelphia, M. B. Wright, of Cincinnati, G. C. Shattuck, of Boston, the committee called for by the resolution of Dr. Davis.

After some miscellaneous business, the Association adjourned to 5 o'clock P.M.

Afternoon Session.

At 5 o'clock P.M., the members of the Association re-assembled, and were called to order by the President.

On motion, the Association went into Committee of the Whole, on the subject of Dr. Marsden's plan of quarantine, Dr. N. S. Davis being called to the Chair.

Dr. L. A. Sayre, of New York, commenced the discussion, strongly advocating the doctrine of contagion, and the system of quarantine recommended by Dr. Marsden. Drs. M. L. Linton, of St. Louis, and J. N. Bell, of Brooklyn, followed upon the opposite side. Drs. John L. Atlee, of Lancaster, Chas. A. Lee, of New York, and Marsden, of Quebec, supported the doctrine of contagion and quarantine; while Dr. Wilson Jewell, of Philadelphia, sustained the opposite side with ability. Dr. King, of Pennsylvania, offered a resolution, endorsing the plan of quarantine, and urging its adoption on Congress. But without coming to any conclusion, the committee rose and reported progress.

The Association then adjourned to 9 o'clock A.M. of Friday.

FRIDAY MORNING—FOURTH DAY.

The Association was called to order at 9 o'clock, Dr. D. H. Storer, President, in the Chair.

The proceedings of the preceding sessions of the Association were read by the Permanent-Secretary and approved.

Some miscellaneous business was transacted, amongst which was the adoption of resolutions of thanks to the President, to the Committee of Arrangements and Profession of Baltimore, and to the Governor of the State and Civic Authorities of the City, for the very hospitable manner in which the Association had been received and entertained during the present annual meeting.

The Secretaries of the several Sections reported in order the doings of each Section; and their reports were severally accepted and referred to the Committee on Publication.

The Association then went into Committee of the Whole, for the further consideration of the resolution of Dr. King, com-

mending the plan of quarantine proposed by Dr. Marsden, and Dr. N. S. Davis was called to the Chair.

Dr. Birge offered a resolution, as a substitute for the one offered by Dr. King, declaring the necessity of efficient measures for preventing the spread of cholera, and asking Congress to take such measures as would test the value of the plan of quarantine proposed by Dr. Marsden. An interesting discussion followed, which was participated in by Drs. Bell, of Brooklyn; Sayre, of New York; Hooker, of New Haven; D. H. Storer of Boston; A. C. Post, of New York; N. Pinckney, of U.S. N., Marsden, of Quebec; and Anderson, of New York.

On motion, the resolution and substitute were laid upon the table. The Committee of the Whole then rose and reported the action taken, which was concurred in by a vote of the Association.

After some items of miscellaneous business, the Association adjourned to meet in Cincinnati, on the first Tuesday in May, 1867.

Thus ended the doings of the Nineteenth Annual Meeting of the Association, so far as the general sessions were concerned, but the principal work of scientific interest and importance was transacted in the several Sections. We were not able to preserve a list of all the papers and reports that were read in the Sections and referred to the Committee of Publication, but they were sufficient to make a good-sized volume, and some of them were papers of decided merit. Among them, was a report on diphtheria, by Dr. Holton, of Vermont; one on spotted fever, or cerebro-spinal meningitis, by Dr. Levick, of Pennsylvania; one on the etiological and pathological relations of epidemic erysipelas, spotted fever, and diphtheria, by Dr. Davis, of Illinois; and one on alcohol and its relations to man, by Dr. J. R. W. Dunbar, of Maryland.

The social interests of the Association were well provided for. The first evening was occupied by an exceedingly pleasant promenade concert in Concordia Hall. The Hall itself was elegant, the music excellent, and the free social greeting and intercourse all that could be desired.

The second evening was occupied by cordial and elegant receptions at the residences of Drs. C. C. Cox, J. Simpson, and T. E. Bond. On the third evening, the Mayor and Council of the City of Baltimore gave the Association a very bounteous and hospitable entertainment, which was accompanied, as usual, by toasts and speeches, until a late hour. The occasion was highly enjoyed by all, and was quite free from those excesses which sometimes mar such public festivities. On the afternoon of the fourth and last day, the members of the Association, with their ladies, were provided with an excursion to Annapolis and a reception by the Governor of Maryland. This was, in all respects, one of the most pleasant seasons that the members of the Association have ever enjoyed. The day was fine; the boat in excellent order, with a splendid band of music from Fort McHenry; the company enlivened by the presence of many ladies of the highest social qualities; and the reception by Gov. Swan, with the interchange of sentiments between him and Dr. Cox, as the representative of the Association, all contributed to make the occasion one long to be remembered with great pleasure. Altogether, the influence exerted by this annual meeting of the Association, at this crisis in the history of our country, cannot fail to be of a permanently beneficial character.

A more extended notice of the work done in the several Sections, must be reserved until our next issue.

New Books.—We have space only to acknowledge the reception of the following new works:—

Recent Advances in Ophthalmic Science. By H. W. Williams, of Boston. Ticknor & Fields Publishers. 1866.

For sale by J. R. Walsh.

Asiatic Cholera. By F. A. Burrall, M.D. Published by Wm. Wood & Co., 61 Walker St., New York. 1866.

For sale by Keen & Co., 148 Lake St., Chicago.

Transactions of the American Medical Association, Volume 16, for 1865.

A large-sized, neatly-published volume, the contents of which shall be noticed more fully hereafter.

THE AURORA HOMEOPATHIC QUACKS TREATED TO AN "ALLOPATHIC DOSE OF FACTS."

By D. W. YOUNG, M.D., of Aurora, Ill.

The following spicy correspondence is taken from the Aurora *Beacon*:—

At a recent meeting of the Aurora City Medical Association, DR. YOUNG said he had now under treatment one of the worst cases of mercurial sore mouth that he had seen in ten years. The patient had been treated for eight weeks by one of the Aurora homeopathic doctors for a simple ailment, and had come out of the conflict minus $80.00 in cash, and with a magnificent *calomel sore mouth.* "He presumed, of course, the remedy had been given under the sanction of homeopathic law." In this case they are estopped from resorting to the usual homeopathic dodge of charging it to the account of previous medication, for the reason that the patient is a young person that had never been subject to medical treatment before, and therefore it is unquestionably a case of original homeopathic "mercurius." He thought it undeniable evidence of "Medical Progress." He said if he should find as bad a case of mercurial salivation, resulting from medical treatment, in the hands of a regular physician for such a disease, he should certainly recommend a prosecution for mal-practice.

To which the Homeopaths replied as follows:—

NOTICE.

Editor Beacon:—We, the undersigned, believing that in the report of the A. C. M. Association, published in your issue of last week, Dr. Young attempted to vilify and slander Homeopathy, and believing his assertions to be *false in every particular*, challenge him to publish the name of the physician and patient, for the benefit of the public and in vindication of his own honor. (Signed,) A. R. BARTLETT, M.D.,
F. H. VANLIEW, M.D.,
A. W. WOODWARD, M.D.,
W. M. L. FISK, M.D.

To which request Dr. YOUNG replied promptly as follows:—
To A. R. Bartlett, M.D., F. H. VanLiew, M.D., A. W. Wood-

ward, M.D., and W. M. L. Fisk, M.D., Homœopathic Quacks of Aurora.

Gentlemen:—Your communication published in the Aurora *Beacon*, April 12th, commenting upon my report to the Aurora City Medical Association of the case of "Magnificent Homeopathic calomel sore mouth," is before me. In reply allow me to say that it affords me unbounded pleasure to comply with your petition or challenge so far as to publish for "the public benefit," the name of the homeopathic physician who treated the patient (his name is Fred. H. VanLiew) and regret exceedingly that professional honor precludes me from publishing the name of the patient. But in lieu thereof I will publish the following certificates substantiating my statement:—

This may certify that I went with Mr. —, a friend and messmate of mine, who was suffering severely with a sore mouth, to Dr. D. W. Young's office, and while there heard him tell Dr. Young that he had been treated by Dr. Fred. H. VanLiew for eight or nine weeks; that while he was taking VanLiew's medicine his mouth and gums became very sore, teeth loose, breath fetid, and had a peculiar metallic taste in his mouth. When he spoke to VanLiew concerning his sore mouth, he told him *it was scrofula coming out.* I know he druled constantly, and was compelled to spit nearly all the time.

G. M. Caskey, Painter at Car Shops.

April 13, 1866.

I hereby certify that I was present in Doctor Young's office and heard the above conversation. I saw the man's mouth, and know that he druled badly and spit almost constantly. I have no doubt but it was a pure case of calomel sore mouth.

John Green, Medical Student with Dr. Young.

I do confess, gentlemen, that I am surprised at your pretended ignorance in attempting to deny that such cases do occur in your practice, *when you know them to be of quite frequent occurrence.* Every physician who has practiced medicine in Aurora any length of time, and met your patients, knows this to be the case. I did not report this case because of their rare occurrence, but because of its severity. At the last meeting

of the Fox River Valley Medical Association, Dr. Hard reported a similar case that occurred under the treatment of one of your number. Please challenge him, and I have no doubt he will publish the name of the physician for the "public benefit." As further proof that you do use calomel, I publish the following testimony of Dr. Taylor, the celebrated English chemist, before the select committee of Parliament. He said: "I detected, in six powders, that three contained sugar of milk, and three contained morphine and *calomel.* The powders were numbered to be taken on certain nights, and in every other powder there was sugar of milk, and in every other powder morphine and *calomel.*"

I am, gentlemen, with great respect, your obedient servant,

D. W. YOUNG, M.D.

PHILADELPHIA, *Jan. 20, 1866.*

DEAR SIR:—Your attention is invited to the following letter and prospectus. Should the enterprise named therein commend itself to your support, we shall be happy to forward your name as a subscriber. Very respectfully,

Your obedient servants,

J. B. LIPPINCOTT & Co.

ROYAL LIBRARY, WINDSOR CASTLE,
21st December, 1865.

MY DEAR SIR:—I send you a prospectus of a work of great interest and importance, which I believe may attract as much attention in America as it can on this side of the Atlantic: for the name of Leonardo da Vinci belongs to the world; and this record of his profound studies in science, and his consummate skill in art, concerns all who care to know how human civilization has reached its present elevated point.

The MS. which I am about to publish has belonged to the Royal Collections ever since the time of Charles II. But, by a most remarkable accident, it was laid aside and totally forgotten for full 90 years after it had been purchased. Since 1763, when it was discovered in an old bureau at Kensington Palace, it has been seen by a few persons only; because it formed a part of the private collections of the Crown. But all who were able to appreciate it joined in the opinion I have quoted in my prospectus from the writings of the celebrated Dr. Wm. Hunter.

This great surgeon proposed to publish some portions of the MS. in *fac-simile*, but was prevented by death. At a later time, Mr. Chamberlaine, one of my predecessors in the care of the Royal Collection of Prints and Drawings, entertained the same design, and did engrave six plates, when he was stopped by the prodigious expense of the undertaking. The discovery of the process of photolithography renders it now comparatively easy to reproduce an exact copy of each line and touch of the great artist. And when it is considered that this MS. records the first discovery of the circulation of the blood, and fills up a great blank in the history of anatomical science, while the drawings are perfect models for the student of art, I cannot but think my enterprise will be warmly supported.

Her Majesty the Queen has headed the subscription list with an order for ten copies, and their Royal Highnesses the Prince of Wales (to whom the work will be dedicated), the Prince of Prussia, Prince Alfred, and Prince Louis of Hesse, have also given me their names; I have also, almost before I have announced my plan, received the subscriptions of the British Museum Print Room, the Department of Science and Art, and of several both of the nobility and gentry, and scientific and artistic men, who desire my series.

I need not say that I shall welcome most warmly any support you can procure me in the United States; and so

I remain, my dear Sir,

Yours most truly,

J. B. LIPPINCOTT, ESQ. B. B. WOODWARD.

PRIVATE PROSPECTUS.

The Anatomical Drawings and Writings of Leonardo da Vinci are among the choicest treasures in the Royal Library at Windsor Castle. They are contained in about two hundred detached leaves of note-books, and appear to be the records of studies commenced as his needful training in art, and would, perhaps, have been employed in the great Treatise on Painting which he afterward projected. But he carried his researches far beyond what was required for these purposes, and arrived at results which entitle him to a place in the foremost rank of discoverers in this branch of science. Vasari, after describing (with a little pardonable inaccuracy) these works, reports the opinion entertained of them in his day. "It appears," he says, "almost incredible that this sublime genius could at the same time discourse, as he has done, of art, and of the muscles, nerves, veins, and any part of the frame, all treated with equal

diligence and success." And Dr. Wm. Hunter, who saw them in the last century, in the Royal Collection, thus expressed his appreciation of them:—"When I consider what pains he has taken upon every part of the body, the superiority of his universal genius, his particular excellence in mechanics and hydraulics, and the attention with which such a man would examine and see objects which he was to draw, I am fully persuaded that Leonardo was the best anatomist, at that time, in the world."

These drawings and writings it is now proposed to publish in *fac-simile*, on account of their combined artistic and scientific value. And Her Majesty the Queen has been graciously pleased to permit their publication in the interests of these studies.

The whole work will consist of about two hundred and fifty plates, in folio, with the text of the MS. printed in full, an English and a French translation, and all needful notes and elucidations.

Mr. Panizzi, Principal Librarian of the British Museum, has undertaken to superintend the text, and Dr. Sharpey, Sec. R. S., Prof. of Anatomy and Physiology in University College, London, will assist in the preparation of the scientific commentary.

It will be issued in twenty parts, at the price of one guinea each, and the publication will commence early in the year 1866.

B. B. WOODWARD.

ROYAL LIBRARY, WINDSOR CASTLE,
2d Oct., 1865

Subscriptions received by J. B. LIPPINCOTT & CO.,
715 & 717 Market St., Philadelphia.

THE RINDERPEST.—Most of our daily papers are filled with accounts of the progress of the cattle plague in England and Europe. Amongst the most recent dispatches of this scourge are from our Consul at Liverpool up to the date of January 20 ult. Thus far he reports that 70,000 cattle have either died of this plague, or been killed after taking it. It is probable that additionally hundreds of cases are not reported at all, so that these figures by no means represent the full and actual loss. Vaccination is being tried as a preventive. Inasmuch as these scourges amongst the lower animals have come in some way to be regarded as forerunners of Asiatic Cholera, an item of plague amongst animals in this country will be read with

interest. We are informed by a very intelligent physician from Grant County, Kentucky, that in his county large numbers of hogs are dying off from an epidemic, materially different from the disease familiary known in this country as "Hog Cholera." The animals sicken, become languid, helpless, refuse food, and linger a number of days before death. There is no diarrhœa, but frequently toward the termination of the case there is set up a dysentric discharge from the bowels. The general progress of the case resembling the typhoid fever of the human animal, and a *post mortem* examination revealing similar intestinal lesions.—*Cincinnati Lancet & Observer.*

Mortality for the Month of March.—The mortality report for the month of March, as copied from the books of the health-officer, is given below. The report is very gratifying when compared with the reports of the same month for the years 1864 and 1865. Last year in the month of March 279 deaths were reported. In March, 1864, the number was greater by 90 than now. Not one case of small-pox is reported, and the city is evidently entirely free from all kinds of epidemic disorders:—

CAUSES OF DEATH.

Accidents,	3	Intermittent Fever,	1
Apoplexy,	2	Inflammation of Brain,	3
Asthma,	1	Inflammation of Bowels,	5
Bronchitis,	1	Inflammation of Lungs,	9
Brain Fever,	5	Inflammation of Liver,	1
Congestion of Brain,	5	Jaundice,	3
Congestion of Bowels,	1	Killed,	1
Congestion of Lungs,	5	Lung Fever,	7
Colds,	2	Liver Complaint,	1
Cancer,	2	Marasmus,	1
Consumption,	31	Measles,	2
Cramps,	14	Old Age,	5
Croup,	12	Pneumonia,	4
Convulsions,	3	Paralysis,	4
Childbirth,	9	Puerperal Fever,	2
Cerebro-Spinal Meningitis,	4	Suicide,	3
Cholera-Morbus,	1	Stillborn,	9
Cholera Infantum,	2	Scarlet Fever,	12
Decline,	2	Ship Fever,	1
Diphtheria,	14	Typhoid Fever,	9
Dropsy,	6	Typhus Fever,	2
Diarrhœa,	3	Teething,	3
Erysipelas,	1	Water on Brain,	5
Fever,	2	Worms,	1
Heart Disease,	2	Unknown,	24
Hemorrhage,	1		
Hydrocephelas,	1	Total,	254
Intemperance,	1		

Ages of the Deceased.—Under 5 years, 122; over 5 and under 10 years, 14; over 10 and under 20, 11; over 20 and under 30, 34; over 30 and under

40, 28; over 40 and under 50, 12; over 50 and under 60, 7; over 60 and under 70, 9; over 70 and under 80, 8; unknown, 9. Total, 254.

NATIVITIES.

Chicago,	120	Canada,	3	Prussia,	1
Other States,	42	Ireland,	29	Switzerland,	3
England,	6	Scotland,	1	Unknown,	10
Germany	32	Sweden,	3		
Bohemia,	1	Norway,	3	Total	254

DIVISIONS.

North, 62 | South, 94 | West, 98 | Total, 254

BERKSHIRE MEDICAL COLLEGE.

THE FORTY-FOURTH ANNUAL COURSE OF LECTURES IN THIS Institution will commence on THURSDAY, JUNE 14TH, 1866, and continue eighteen weeks.

FACULTY.

H. H. CHILDS, M.D., PRESIDENT.
WM. WARREN GREENE, M.D., DEAN.

HENRY H. CHILDS, M.D., Emeritus Professor of the Theory and Practice of Medicine.

CORYDON L. FORD, A.M., M.D., Professor of Anatomy and Physiology.

WM. WARREN GREENE, M.D., Professor of Principles and Practice of Surgery and Clinical Surgery.

ALONZO B. PALMER, A.M., M.D., Professor of Pathology and Practice of Medicine.

WM. C. RICHARDS, A.M., M.D., Professor of Chemistry and Natural History.

HORATIO R. STORER, A.M., M.D., Professor of Obstetrics and Diseases of Women.

A. B. PALMER, A.M., M.D., Acting Professor of Materia Medica and Therapeutics.

HORATIO R. STORER, A.M., M.D., Acting Professor of Medical Jurisprudence.

FRANK K. PADDOCK, M.D., Demonstrator of Anatomy and Prosector of Surgery.

By the recent action of the Officers of the College, two weeks have been added to the Course, making it now eighteen weeks in length; and it will hereafter commence on the Thursday nearest the middle of June, instead of the first Thursday in August, as heretofore; thus giving time for a *full* Summer Course, without interfering with the Winter or Spring terms of other Schools.

It is intended that the Course of Instruction in each Department shall be *eminently* thorough.

Medical and Surgical Clinics are held every Wednesday and Saturday.

Several valuable prizes are offered in different Departments.

Circulars containing full information sent on application to

WM. WARREN GREENE, M.D., DEAN.

Pittsfield, Mass., Feb. 17, 1866.

DR. EDWARD L. HOLMES,

179 DEARBORN STREET, CHICAGO.

Special attention given to Diseases of the Eye and Ear.

Referred, by permission, to the Editor of this Journal.